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THE PHILOSOPHICAL REVIEW

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THE

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IDENTITY AND IMPLICATION

IT IS claimed for the dictum, identity implies difference, that it states the sole view of identity on which implication is possible. Other than the truth that all is relevant to all, there is but the absurdity that whatever may be distinguished is what it is absolutely, and hence with no necessary relations beyond itself. For, it is argued, on the assumption that the moments of experience are self-identical, every single moment of the real is itself inherently, and independently of all else. Yet, were this true, the Absolute would be a mere "dissolute"; an infinite plurality of intrinsically individuated moments, each one isolated in its own integrity.

On any such ontological atomism as this, it is urged, inference and implication would not be possible. For were reality composed of the atoms of being into which it would thus be pulverized, knowledge could be no developing process of thought, but only a discrete, static intuition of the actual moment. Such utter fatuity might be enough for a resolute solipsist; certainly it could not satisfy a mind. And even though it were admitted that a Cartesian view of inference is tenable, there remains the plain fact that the notion of identity as absolute is a view of identity on which implication is not possible. For if every moment of experience is intrinsically individuated and self-identical, all moments of the real are then absolute, each one in itself, and separate, every one from the other. Now as thus self-sufficient because self-identical, no moment can imply anything beyond itself. Hence the being of no moment implies the being of any other. It is thus plain that, in the succession of intuitions sustained by memory, which, on this pluralist view, inference is, no necessary connections between the moments successively intuited are to be disclosed. The move-

ment of the mind, from the awareness of one moment to that of another, is therefore determined by and follows no necessity. Thus a man who would assert identity to be absolute must admit that for him knowledge is never more than a fatuous awareness of the passing moment, and that 'implication' is a word without meaning.

It may be admitted that what is self-identical is by that very fact self-sufficient; and yet be denied that on this admission the possibility of implication is excluded. For the argument in question depends on a false assumption; namely, that logical necessity is to be identified with natural or moral want. It is the assumption that for 'implies' may as well be read 'is deprived of', or 'wants', that makes it plausible to argue that what is self-sufficient can imply nothing beyond itself. Plainly, what is self-identical and therefore self-sufficient suffers no privation. Hence, on the assumption that only what is deprived of x may imply x, what is self-identical can imply nothing at all. Yet it would seem to be no less plain that 'to be deprived of x' and 'to imply x' do not mean the same thing: the famished do not necessitate the food of which they are deprived; they sometimes starve.

If the argument from the self-sufficiency of what is absolutely identical, to the conclusion that whatever were thus identical could imply nothing at all, is vitiated by the false assumption we have just noticed, there is another argument with the same aim which is not thus vitiated. This is the argument that, if identity were absolute, relations could not be internal to their terms. Yet relations must be internal; and this must be so, primarily in order that there may be relations at all, but also in order that the systemic whole which is the sole and total ground of implication may exist.

What is central in this argument may perhaps be put in this way. The assertion that qualities and relations are self-identical is equivalent to the assertion that qualities and relations are discrete. For to assert of a quality that it is self-identical is to say of it that, in its absolute identity, this quality requires nothing beyond itself, in order that it may be the quality it is. And this is surely to assert that the quality is discrete. The same thing applies no less to relations. Yet qualities and relations are not discrete moments of the real. For, in the first place, we do not in fact find

qualities apart from relations; nor do we in fact find relations apart from terms. Then again (this time to quote Bradley), "There is an operation which, removing one part of what is given, presents the other part in abstraction. And, if we have no further information, I can find no excuse for setting up the result as being fact without the process".[1] Since there can be no abstract quality that is not the product of a process of abstraction, no such product can be thought of as separate from the process by which it is produced. Finally, it is not possible that two qualities should be thought, and yet that there be no relation between them. The qualities would be related simply in virtue of their occurring in judgment. But more than this: that a man may think *two* qualities, it must be that these qualities are different. For otherwise they would be not two, but one. Yet without relation 'difference' can have no meaning. For, since a quality cannot differ from itself, the difference between one quality and another cannot fall wholly within the one or the other of them. Their difference must then be true of both at once, and so constitute a relation between them. It is no less plain that relations cannot be taken apart from all quality. Furthermore, the assumption that relations may be merely external to their terms involves a vicious regress. For what, but another relation, could relate the alleged external relation to its qualities?—and so on, *ad infinitum*. A so-called external relation can only fail to relate its terms, and thus to be a relation at all. What is found in fact is thus discovered also in judgment: relations separate from terms are not in fact to be found; and thought of as merely external to their terms, relations fail to be what in fact they are.

On this view, that all relations must be internal to their terms, or else be not relations at all, it would seem to be plain that identity implies qualitative difference. For that a relation is internal to its terms means at least that any alteration in either term makes a difference in its relation and in the other term. Hence, on this view of the nature of relations, to change a relation cannot mean to substitute for it another relation that is numerically different from the first one, and yet qualitatively identical with it; to change a given relation is on this view to introduce a new rela-

[1] *Appearance and Reality* 2nd. Edn. Allen & Unwin.

tion that is both numerically *and* qualitatively different from the first. The same thing is true of terms. Thus no difference is numerical merely; all difference is difference in quality. Since, then, to be a term or a relation at all is by that very fact to be qualitatively different from every other term and relation, it is plain that the identity of any single term or relation implies the difference of that term or relation from all else.

That implication may hold only within a systemic whole is held to be a plain consequence of the truth that in the real every moment is what it is only because it implies its difference from all else. It is because the identity of every moment is thus implicated in, and implied by, the identity of every other, that inference from one moment to any other is possible. And in some quarters it is held that to this view the only alternative is that of an utter plurality of discrete qualities; an alternative on which implication would be impossible, and knowledge no more than an empty stare at what is present. If, however, identity is not absolute but relative, the real would then consist of a system within which the identity of every moment implies its difference from every other; and thus the necessary and sufficient condition of implication would be fulfilled.

Now since a system within which every single moment implies its difference from every other is a system of qualities in internal relations, the claim that the being of implication depends on the reality of a system is a claim that rests on the doctrine that all relations are internal. The question, then, which must be raised is this: can it be maintained that the reality of implication depends on the reality of internal relations? For this is what is maintained when it is asserted that, without a system in which identity implies difference, implication can have no reality.

An internal relation, Bradley says, is a relation that "makes a difference" in its terms. Now if this claim is to have the force that is its alleged due, it must be read to mean that *R must* make a difference in its terms, X and Y. Thus, on page 574 of *Appearance and Reality*, Bradley asks, "Are qualities and in general are terms altered *necessarily* by the relations into which they enter?". And on page 364 he says, "A relation *must* at both ends affect, and pass into the being of its terms". It is because a relation must

make a difference in its terms that any alteration in the relation must generate a difference in the terms of that relation. But to say that an internal relation is a relation that *must* make a difference in its terms, is surely to acknowledge that the very definition of an internal relation involves necessity.

It is therefore hardly possible that the reality of implication should depend on the internality of relations. For since *R must* make a difference in its terms X and Y, it is then true to say that the being of *R* implies the *difference* that *R* makes in X and Y. And because those terms are nothing without their difference, then, since *R* implies or necessitates this essential difference, it is true to say that *R* implies X and Y. Thus to say of *R* that it *must* make a difference in X and Y is to say that *R* implies X and Y.

Since, then, implication or necessity contributes to define the nature of internal relations, any argument from the internality of relations to the being of absolute system must take the reality of implication for granted along with that of internal relations. The reply that we may take for granted the system itself, and rightly regard it as being the ground of implication, is either an invitation to take what is admittedly beyond the reach of thought for the ground of necessity, or else it is no answer at all. For the system in question either is supra-relational, or else is exhausted in the reality of its internally related qualities. Should we attempt to embrace the first one of these two alternatives, we would be baffled at once. This absolute system either is or is not related to its appearances. If it is related to them, then it is in virtue of that very fact itself an appearance. But the Absolute can hardly be an appearance. Yet, if it is not related to its appearances, the Absolute cannot be referred to at all. If, on the other hand, we take the alternative on which the system is exhausted in its internally related qualities, then the answer that the system, so understood, may be taken for granted, is no answer to our contention. For it amounts to saying that the internality of relations may be taken for granted. This, whether true or false, is no answer to the contention in question; namely, that if we would have a system of internal relations, necessity must be regarded as being absolute, not mediated. For, if the system in question be taken for granted, then the necessity which contributes to define

the internal relations that exhaust the system which they are, must likewise be regarded as being no less primary and ultimate than on this hypothesis the internality of relations is assumed to be.

Hence, even though it were true of implication that it holds between all terms and their relations, thus to constitute them a systemic whole, from this it does not follow that the reality of implication depends on the being of the systemic whole which, on this hypothesis, implication would contribute to define. It would seem rather that the implications obtaining between relations and their qualities are without ground or origin of any sort. That this is so may perhaps be made out in the following way.

The metaphor 'internal' conceals the fact that the 'internality' of a relation is the implying by that relation of its terms. It is not enough to say that internal relations *do* make a difference in their terms; internal relations *must* make this difference. Here it will perhaps be objected that the attempt to distinguish implication or necessity as being a factor in the internality of relations is hopelessly mistaken. Relation cannot be turned into quality, any more than quality can be turned into relations; but an internal relation is simply a relation that affects and alters its terms. There is the relation, and there are its terms; but that is all. No necessity or implication is involved in internal relations, because terms and relations are such that relations do make a difference in their terms.

It may be pointed out, in reply to this objection, that 'the internality of relations' is either a dogma or a logical doctrine. On the first alternative, it may of course be said that relations do make a difference in their terms. But if it be asserted that the view in question is a theory that must be accepted, then merely to assert that relations do modify their terms can hardly be enough. It must be maintained that relations and qualities are such that relations *must* make a difference in their terms. If a man wishes to maintain that in his view qualities are affected by their relations, he may of course assert this on the strength of his experience, or his authority. But if he maintains that relations and qualities are such that relations must modify their terms, then he asserts not merely that *in fact* relations are internal, but that relations and qualities are such that relations *must* be internal. Hence,

if the view that relations are internal is a theory that must be accepted, the alleged truth that relations modify their terms necessarily, may not be disregarded. And for two reasons this necessity cannot be a mere name for the fact (if such it be) that any alteration in a relation makes a qualitative difference in its terms.

Let it be supposed that on the alteration of ARB, we find CR_2D. The necessity that R_2 have the terms C and D, and that C and D stand in the relation R_2, is a necessity that is not different in quality or character from the necessity that R have A and B, and that A and B stand in the relation R. Yet we have seen that every single relation and term is qualitatively different from every other. Thus, whereas any alteration in a relation must make a difference in its terms, there is no difference in quality between the necessity that R have A and B, and that R_2 have C and D.

In the second place, to assert that relations and terms simply are such that they do affect each other, is to deprive the view in question of all logical necessity. It may then be asserted that relations do modify their terms. But since, *ex hypothesi*, there is now in question no more than the terms and the relations themselves, it cannot be said that relations necessarily, or must, alter their terms. Hence, because terms and relations are different in quality whereas instances of necessity are not, as well as for the further reason that, viewed as involving no necessity in their constitution, internal relations are no longer internal necessarily, it must be admitted that the necessity involved in internal relations, to which Bradley refers, is there to be distinguished from the terms and the relations themselves.

We may thus conclude that implication does not depend for its being on the reality of a systemic whole. Since an internal relation is one that must affect its terms, necessity is involved in the very definition of an internal relation. The being of a systemic whole consisting of internally related qualities may therefore not be held to be logically prior to the reality of implication. Nor can any internal relation, or relations, be the ground of the necessity in virtue of which relations are internal to their terms. For, since R is internal to X and Y only in virtue of the implication which holds between R and X and Y, the identity of that implication cannot be grounded in the internality of R. This applies equally

to terms. The identity of the implication, of the necessity, involved in an internal relation must then be grounded in itself; which is to say that the implication is self-identical and without ground or origin of any sort. Thus it may not be held that relations imply their terms because they are internal; for relations are internal (if they are) because they imply their terms.

Having noticed that the reality of implication is no less primary than is that of relations and terms, and so not to be grounded in them, we may now go on to ask about the alleged requirement of all thought, that the identity of relations and terms be not absolute, but relative. In this connection it will be noticed that, if a relation implies its terms, this is because it is *that* relation, and not just any one. Any example of an internal relation may of course be itself a term in another relation; and on the theory that all relations are internal, every single internal relation must be also in this sense a term. But to assert of a relation that it implies no matter what pair of terms is to assert in effect that all terms are equally external and adventitious to it; that it does not imply *these* terms rather than *those*. It is thus always R, never $R_{x,y}$, that implies X and Y. Hence that this particular relation should imply those particular terms is possible only if that relation is what it is, and if those terms are the terms they are. It is *that* self-identical relation, *those* self-identical terms, and the implication which holds between that relation and those terms, which together constitute *this* internal relation. To deny this and assert 'the internality of relations' to be itself something primary and ultimate, would be to regard that doctrine as being in itself the ground from which might be inferred not only the reality of any relation whatsoever, and that of its terms, but also the reality of the very implication in virtue of which the relation would be internal. That would be the cart before the horse with a vengeance.

Now, furthermore, *if* A is A absolutely, this cannot be in virtue of anything ulterior to A itself; for there neither can nor need be adduced any necessity or ground for that initial and ultimate character of whatever is real. But such is not the case if the identity of A is regarded as being relative to everything not A. For, on that view of identity, any A is A only *because* it implies its difference from all else. Thus, whereas the statement 'A is A'

claims no ulterior ground, in the statement, 'A is A *because* it implies its difference from all else', that claim clearly is made. For here it is not asserted that A does imply its difference from all else; it is asserted that it is *because* A implies this, that A *is* A. If valid, the inference expressed by this 'because' cannot be without reason or ground. Yet where is that ground to be found?

Since what *may* exist, thus to be known, is all that creatures no more than rational can even imagine, this ground, if it be at all, must be of that reality which may exist and appear. The ground of the statement, 'A is A because it implies its difference from all else', is thus to be sought for within all moments of the real which are different from any A, together with that A itself. For that is all that may exist. The question, then, would seem to be this: which moment or moments of the real ground the inference in question?

Since it is impossible that the ground of a consequent should be itself an instance of that consequent, it is plainly out of the question that this inference should be grounded in anything whose identity were relative. In other words, since the symbol 'A' stands for any moment whatever of the real, no moment whose identity is relative can be adduced as being the ground of the inference, 'A is A because it implies its difference from all else'. If, then, that inference has a ground, this ground must be something whose identity is absolute, not relative. Yet what moment of the real is thus to be regarded as an exception to the alleged truth that identity implies difference? If of one moment it is admitted that its identity is absolute, why not of all? But more than this: the truth of the statement, 'A is A because it implies its difference from all else', plainly cannot be inferred from any instance of 'A is A'. Hence the validity of the inference in question cannot be grounded in any moment whose identity is either relative or absolute; which is to say that it cannot be grounded in any experience at all.

It may be objected that thus to limit the possible grounds of this inference to what may exist and appear is arbitrary and worse, since it excludes precisely what is the ground sought for. It is of course true that the Absolute as such and in its fullness cannot appear. Yet, even so, the Absolute is known to be the

identity in all differences, much as light is seen to be the identity in all colors. But here it must be asked: Is the identity of the Absolute relative to the identity of its relatively identical constituents? If so, the Absolute cannot ground the claim that identity is relative. It must then be that the Absolute is self-identical. But since a negative conclusion cannot be inferred from a positive premise, from the statement 'A is A' it cannot be inferred that A is *not* A absolutely, but relatively. It is thus plain that from something the identity of which is absolute, it cannot be inferred that the identity of everything else is relative.

Since, then, there is to be found no ground from which the validity of the inference that A is A because it implies difference from all else may be inferred, that inference is no more than arbitrary. Furthermore, the view that identity implies difference itself implies an absurdity. For if identity implies difference, then difference implies uniqueness.

On the view that every single moment of the real is what it is only because it implies its difference from all else, there can be no two indiscernible differences. Not only does every relation with its terms constitute a triad that is unique; that very relation, and those two terms, are each one of them unique. This must be true, if identity implies qualitative difference. For were there in experience two indiscernible moments, there would then be one moment whose identity did not imply its qualitative difference from all else. All repetition, quotation even, is hence impossible; no thought can be twice thought, no statement twice made, for every thought, every statement, is unique. That $2 \times 2 = 4$ can be thought but once; and no man can fall twice into the same error. These considerations call attention to the truth that, if identity implies difference, no two moments of the real can have anything in common; which is to say that no moment can be compared with any other.

The assertion that two moments of experience are comparable implies that in each one of them there is to be discriminated, by a stroke of attention sufficiently acute, a quality or character that is, in the one moment, what it is in the other. Yet, if identity implies difference, this cannot be. For, to quote Bradley:

> If every distinction means something diverse, on the other hand diversity (it will be urged) involves in principle no aspect of identity, and plurality implies no unity or whole. Whatever is distinguishable is everywhere a separate reality; a being different from all others, self-contained and unique. What is beyond these unique reals—beings which, each and all, to one another are nothing—is merely relations. But these relations, themselves again particular beings, are, once more, external, each to all else. And hence they make no possible difference in reality, any one of them, to anything whatever beyond itself. Here therefore we have uniqueness, and in the world there is nothing, actual or possible, which fails to be unique. The question anywhere as to "another such" is even devoid of meaning, since (to go no further) the word "such" is absolutely senseless.[2]

Bradley goes on to say that no one, he supposes, "ventures openly and consistently to adopt the position just stated". And he points out that on this view every appearance of unity, totality, or identity, is "mere illusion". Since, however, on the principle that identity implies qualitative difference, every distinction does mean something diverse, it follows that on this principle diversity does involve no aspect of identity. In other words, since every distinguishable moment of the real is what it is only because it implies its difference from every other, there can be in experience no two indiscernible moments. For were there two indiscernible differences, then, *ex hypothesi*, there would be one moment whose identity did not imply its qualitative difference from all else.

The assumption that, even though all relations are internal, some differences still may be numerical merely, contradicts a consequence of the internality of relations. For numerical difference is at least a difference that in no way affects qualitatively whatever may be thus different. Qualities and relations which were no more than numerically different would be such as to stand to each other in the quite external relation of otherness. And, on the view that relations must make a difference in their terms, this can hardly be the case. Since it is asserted that, "if there is any difference, then that implies a relation";[3] and since a relation, being internal, must make a difference in its terms, then no quality or relation may be merely other than any other moment of experience. In short, if all difference implies relation, and if every rela-

[2] *Logic* 652. [3] *Appearance and Reality* 29.

tion makes a difference in its terms, then there can be no moments of experience merely other than each other; there can be no qualities in a relation by which they are not penetrated and altered. Thus, the identity of no matter what term or relation implies the qualitative difference of that 'what' from all else.

Although from the single premise that all difference is difference in quality it cannot be inferred that identity implies this difference, from the premise that identity does not imply qualitative difference it follows that no moments of experience are numerically different merely; that all difference is difference in quality. But this means that every quality is unique. Being unique, Bradley says, has two aspects, negative and positive. With regard to the negative aspect, when we say that something is unique, we mean to say what it is not; that it is not one of a kind, sort, or such as to be an instance or an example.[4] The positive aspect of uniqueness consists in the "inseparable oneness of 'what' and 'that' ". Only that in which the 'what' and the 'that' are inseparable is self-contained; and only what is so contained is unique.[5] The 'that' offers itself as being self-contained, and so (by definition) claims to be unique. And even though the 'this' may internally contain diversity, still that is subject to the "immediate oneness" of the 'this'. Yet consciousness does not and cannot remain always at the level of mere feeling. Thus, while the this "comes to us as unique", at the same time, it "comes to us as otherwise, and offers itself also as passing beyond itself". Hence the claim of the 'this' to absolute uniqueness cannot be justified. "On the other hand we may agree that about the 'this', as again about the diversity of qualities, there really is something unique. We have something here at once positive and yet not resolvable wholly into an aspect of 'such'. But what in the end this 'something' is we are unable to say. . . ."[6]

The 'this' is thus in some respect or other always unique; yet never absolutely so, since always it involves incipient tendency beyond itself. Thus, because it is not at rest within itself, the this is not actually self-composed, and hence not wholly self-contained. Yet, even though it be true that the 'this' inevitably tends to

[4] *Cf. Logic* 647.
[5] *Ibid.* 649.
[6] *Ibid.* 655.

pass on beyond itself, even though the 'what' passes always on beyond the 'that', does this view of the matter allow us both to hold that identity implies difference and to deny that every difference is unique? Admitting that if being unique is properly being self-contained, we then may affirm the one and deny the other of the two statements in question, still we must ask whether this is or not the case on what is perhaps a less unusual view of the meaning of the term 'unique'.

If being unique is being one and single in quality, then, if identity implies difference, every single difference is surely unique. The 'what', prescinded from the 'that', can have no instances; for were there of the same 'what' two instances no more than numerically different, it would then be true that the identity of one of these did not imply its qualitative difference from all else. What is unique, what is one and single in quality, thus cannot be repeated. Is it then possible that a single 'what' should be identical in several differences? On the view that relations make a difference in their terms, plainly not. For a single 'what' given in one context of relations, being what it is as much in virtue of that context as in virtue of everything else, must be different from any 'what' in any other context. And on the assumption that identity is relative the same conclusion follows. The identity of a single 'what' in its context is relative to, and therefore determined by, that context. This 'what', in its own context, must therefore be different from that 'what', in its own context.

Yet, even so, may it not be the case that a 'what' should be the same in two different contexts? Since relations are internal, and identity is relative, it is of course out of the question that in two different contexts the same 'what' should be absolutely identical; but, even so, may it not remain in many respects the same? This question assumes that 'identity implies difference' may be read to mean 'identity implies partial difference'. For only what is partially different may be partially the same. Yet even on that assumption the answer to the above question, it would seem, must be negative. To say that a single quality in one context is the same and yet partially different in another, is to assert that in the two contexts this single quality is at once identical and yet different. Or, in other words, that in the second of the two contexts the

quality is both different from, and identical with, the quality in the first context. Yet the respect in which the quality is alleged to be identical in the two contexts is found in contexts which are not numerically different. Consequently, this 'respect', being itself a discriminated 'what', cannot be identical in the two contexts. The notion of 'partial sameness' thus affords no way of escape from the conclusion that, if identity implies difference, every difference is unmatched. That conclusion, it would seem, is inevitable on any view in which all difference is difference in quality. For, so long as that is held to be true, it must be the case that no quality may be repeated.

Should we agree that the term 'unique' properly means only that which is self-contained, we would then rightly assert that the Absolute alone is unique. Since, however, on this view of the meaning of the term 'unique', it is taken for granted that identity implies difference, it would still none the less be true that every discernible moment of experience is quite different from every other. Thus, although not intrinsically individuated, and hence not self-contained, every difference is yet one and single, and therefore unique, in that sense of the term. It is of course the case that, even though thus unique, every moment still implies and is implied by the identity of every other. If no moment may be repeated, still no moment is isolated; so that the possibility of implication is thus not excluded. But this a Pyrrhic victory. For thus to defend the reality of implication is to do so at the cost of denying what Bradley himself describes as "the indispensable basis of reasoning";[7] namely, "that so long as an ideal content is the same, no change of context can destroy its unity".[8] For, if relations are internal, if identity implies difference, a single ideal content in one context cannot be the same in a different context. The alleged principle of implication is thus not compatible with what Bradley describes as the first principle of all reasoning: *viz.*, that "What is true in one context is true in another".[9] In what may be the dictionary meaning of the term 'unique', it is thus true to say that, if identity implies difference, difference implies uniqueness. And if "what is true in one context is true

[7] *Logic* 289.
[8] *Ibid.* 288.
[9] *Ibid.* 470.

in another" is the first of the principles of reasoning, this consequence of the dictum in question is surely absurd.

On the view that identity implies difference, it is not merely maintained that every moment of experience is self-identical *and* implies or necessitates every other moment; it is held that every moment is what it is only because it implies its difference from all else. In view of this distinction, it *may* be asserted that every moment of the real is conjoined necessarily with every other, thus to constitute a system, and yet be denied that identity implies difference. The claim that any moment of experience is itself only because it implies its difference from all else, is a claim that is without reason. The inference expressed by the 'because' must have a ground; yet, since the identity of this ground can be neither relative nor absolute, the inference in question can in truth have no ground at all. The claim that identity is relative is thus arbitrary and worse: not only is it without reason, it claims a reason which in truth is not to be found. This is not the case with the view of identity as absolute. If no reason is to be found for the reality of absolute identity, or the absolute identity of whatever may be distinguishable, it is also clear that the assertion of absolute identity implies nothing beyond itself, and so makes no claim to any ulterior ground. And, if "what is true in one context is true in another" is the first principle of all reasoning, it is surely idle to demand an ulterior reason, or ground, for the one view of identity on which what is true in one context may be identical with what is true in another.

Furthermore, the dictum that identity implies difference is not only arbitrary; it implies an absurdity; the absurdity that whatever may be distinguished is unique. Finally, the contention that implication or necessity can be real only if identity does imply difference cannot be sustained. The systemic whole, of which relative identity is the alleged principle, cannot be held to ground the reality of implication. For if this ground is supra-relational, it is then out of all relation to the system of which it is asserted to be the ground. But a ground can hardly be out of all relation to the system of its consequences. Hence the ground in question cannot be supra-relational, and must therefore be related to the system of which it is alleged to be the ground. Yet, since whatever is

related to anything else is *ipso facto* appearance, the alleged ground in question thus ceases to have the unique status of the Absolute, and so fails to be itself the sufficient reason of implication. One other alternative remains; *viz.* that the systemic whole alleged to be the sole and adequate ground of implication is exhausted in the qualities and relations of which it is constituted. On this alternative, to say that the real is a systemic whole is to assert that what is real is everywhere and always quality internally related, and nothing more. Hence, on this view of the matter, that the reality of system is the sufficient reason of implication can mean only that implication depends on the internality of relations. It has been pointed out above that there can be no such dependence. Since an internal relation is one that must make a difference in its terms, necessity contributes to constitute the nature of internal relations and therefore is no less primary than are qualities and relations themselves.

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THE REALM OF UNIVERSALS

THE structure of the realm of universals is seldom accorded an exclusive analysis. Almost always the peculiar relations of universals *inter se* are obscured by preoccupation with the relations between universals and the individuals they characterize. Thus, while transcendentals, categories, second intention, hierarchies, and other topics pertaining to universals, have received no end of attention, our knowledge of the formal interrelations of universals themselves remains most fragmentary. Often, indeed, the formal connections between universals are taken as a mere abstraction or reflection of the connections in the sphere of individuals; and sometimes (as with Santayana) the universals, incredibly enough, are denied any kind of structure.

The present paper attempts to define certain formal relations holding exclusively between universals, apart from their function as predicates of individuals or as accessories to thought. But our attention will be chiefly directed upon the relation of 'instance of' or 'case of', which is the relation expressed when we assert that 'Color is a predicate', or 'Number is a concept', or 'Substance is a category'. Although 'instance of' will not be defined, its formal properties, which appear in course, will distinguish it quite sharply both from species-genus and from the 'characterizing' relation, with either of which it might otherwise be confused. Thus while the characterizing relation between a universal and the individual it characterizes is never transitive, 'instance of' is normally so. Thus we must never say:

Republican is a universal.
Herbert Hoover is a republican.
∴Herbert Hoover is a universal.

For the relation asserted in the major premise is 'instance of' which is typically transitive, while the characterizing relation asserted in the minor is never transitive.

Species-genus and Johnson's determinate-determinable relation are also distinguished from 'instance of' by their formal properties. Thus, for example, where α and β are universals, 'α is an instance of β' is sometimes convertible, while 'α is a species, or a determinate, of β' is never convertible.

Although the main conclusions reached in this paper will be logical rather than metaphysical, the nominalist's metaphysics will be thrown in a very bad light, and such speculation discredited. For the present we may observe that even the briefest consideration of the structure of language and of the appropriateness of predicates will demonstrate that there is something wrong with nominalism. That universals are different from individuals will at once be seen if it be admitted that the proper names of individuals can never be used as grammatical predicates, and that there are other meaningful words which can. Moreover it is clear that the predicates of individuals such as size, shape, motion, duration, and date, are obviously false or meaningless when applied to universals. Color is not itself colored, nor is triangle triangular. The timelessness of universals is likewise evident if we reflect that anything in time is first future, then present, and finally past, and that any temporal object, such as a judgment or a cognition, sinks perceptibly through the present consciousness into the past, whereupon it can never be recalled nor cognized except in the mode of memory. All this is obviously untrue of universals. They do not suffer the time-inflections of future, present, and past, nor sink perceptibly through the present consciousness, nor must they be *remembered* on occasions subsequent to their first appearance in consciousness. Rather they are cognized repeatedly from any position of time or space in the same immediate mode of apprehension. Unlike temporal objects which must always be remembered once they are past, universals need not be, and cannot be, remembered. They are never past.

I. THE SECOND INTENTION

The following sentences indicate the problem we are concerned with:

(1) *White* is a predicate.
(2) This is *white*.

The expression 'white' in these two sentences must mean the same or different things. It would appear that it cannot mean different things, since, if it did, we should never be able to make an assertion about white as a predicate, *i.e.*, as a functioning predicate. For if we attempted to do so, the functioning predicate would become

a subject and cease to be predicate. But we *do* make such assertions and they are quite significant. Thus: 'White is a predicate having the form '$\hat{x}$ is white'.' Accordingly, 'white' in these two occurrences cannot mean different things. But it would appear that it cannot mean the same thing either.

According to Russell's analysis, 'white' as a functioning predicate is always an incomplete symbol which can be written '$\hat{x}$ is white', and it seems clear that 'white' used as subject is the proper name of a universal, for 'white' does not describe the components of the universal, white, (if there are such components) and has no connotation. Thus 'white' as subject is a proper name and hence a complete symbol, while 'white' as a predicate is incomplete. But if (as Husserl holds) a complete symbol is complete only because it means a complete universal and incomplete only because it means an incomplete universal (and this seems to be the only explanation of why some expressions are complete and others incomplete), then 'white' as predicate and 'white' as subject cannot mean the same thing.

The escape from this dilemma is to recognize that the universal φ can undergo a certain *syntactical modification* without changing its *meaning* in the least. Thus φ as predicate of another universal takes the form '$\hat{x}$ is an instance of φ' which we will call '$\hat{x}$ is φ' for short, while φ as subject loses this syntactical form '$\hat{x}$ is' and stands alone. 'φ' as subject is thus the proper name of a universal, while '$\hat{x}$ is φ' is the incomplete symbol for a functioning predicate, which is necessarily incomplete until its referent has been supplied.

As long as we regard $\hat{x}$ and φ as two terms to be related by a third, we shall be open to Bradley's infinite regress of relations; but if we recognize, on the other hand, that the predicate, $\hat{x}$ is φ, is an incomplete form until the substitution of the subject α for the variable χ completes the proposition or fact, we would seem to have escaped.

But this escape is an old story. What concerns us more closely is that we have also escaped from the paradoxes connected with the second intention. We shall conclude, in fact, that though 'φ' as subject and 'φ' as predicate are not identical, they *mean* the same. The difference between them is the syntactic form, '$\hat{x}$ is', which is not in the least semantic. The full *meaning* of '$\hat{x}$ is φ',

'$\hat{x}$ is ($\hat{x}$ is φ)', etc., will consequently be contained in φ, yet it will not be possible to substitute φ for '$\hat{x}$ is φ', or conversely. Thus when we say that 'Blue is an instance of Material Universal', blue will take the form of φ while Material Universal will take the form of '$\hat{\varphi}$ is ψ'. And, similarly, in 'Predicate is an instance of predicate' the two forms will be φ and '$\hat{\varphi}$ is φ'. The syntactical rule indicated by this analysis is that the predicate must always contain one more syntactical form, '$\hat{x}$ is', than the subject. Thus '$\hat{x}$ is an instance of φ' will contain $\hat{x}$ and '$\hat{x}$ *is* φ'. But since we can also make an assertion about the functioning predicate, '$\hat{x}$ is φ', we shall also have '$\hat{x}$ is φ is an instance of ψ', the two components being '$\hat{x}$ is φ' and '$\hat{x}$ is ($\hat{\varphi}$ is ψ)'. By syntactical additions we therefore get three forms of every universal which has instances, namely, φ, '$\hat{x}$ is φ', and '$\hat{x}$ is ($\hat{x}$ is φ)'.

If there is one syntactical element '$\hat{x}$ is' on the subject side, there must be two on the predicate side; and if there were two on the subject side, there would need to be three on the predicate side. But it is extremely doubtful whether this second case involves any more than the first. We are fairly safe, then, in stating a second syntactical rule, that when more than one syntactical element occurs on the subject side, it will cancel out with an extra element on the predicate side. Assertions about '$\hat{x}$ is ($\hat{x}$ is φ)' will reduce, in other words, to assertions about '$\hat{x}$ is φ'.

2. TYPES OF UNIVERSALS

The problem here is that the universal 'Universal' must be an instance of itself but cannot be. If it is *not* an instance of itself it is not a universal. If it *is* an instance of itself it would seem that either (1) an 'illegitimate totality' would be formed, productive of Russellian paradoxes, or (2) 'Universal' would have to be regarded as an instance of 'Universal' on a higher type, and *this* as an instance of 'Universal' on a still higher type and so on *ad infinitum*.

The first argument above is decisive. We must admit that the universal 'Universal' is itself a universal, and the only question which remains is how this is possible. The second alternative, that 'Universal' is an instance of 'Universal' on a higher type, would seem to be a plausible solution, but on reflection shows itself im-

possible. For universals, unlike extensive functions, classes, propositions, and relations, are neither restricted nor unrestricted and contain no reference to a range of application, *i.e.*, to a range of instances. While the scope or range is part of the nature of these extensive functions, classes, etc., the range of its instances is not part of the nature of the universal 'Universal' or of universals in general. Thus if we were to speak of 'types of universals' there would be nothing to mark the differences between the types, and 'Universal' on one type would be the same as 'Universal' on a higher type. It is this peculiar intensional nature of the universal which cuts off the retreat to higher types of universals. Unlike extensive functions, classes, etc., which are determined by the individuals to which they apply and by the type of these individuals, the universal 'Universal' is indifferent to types. And if 'Universal' were so restricted that it applied only on lower types, and not to itself, then 'Universal' in general, *i.e.* 'Universal' as indifferent to types, would be presupposed, and would enter into the statement of that restriction. It would then appear that range or type of instances is quite extraneous to 'Universal'. We may therefore conclude that 'Universal' is not an instance of 'Universal' on a higher type. Then since 'Universal' *is* a universal, it must be an instance of itself. But here the results of the previous section should be borne in mind. Though 'Universal' is an instance of 'Universal', 'Universal' as predicate will not be identical with 'Universal' as subject. The former, as we have seen, will take the form '$\hat{x}$ is a universal' and it is this prefixing of the syntactical element, '$\hat{x}$ is', which permits us to state a relation between 'Universal' and 'Universal' which is other than identity.

The question whether an illegitimate totality is formed by the supposition that 'Universal' is an instance of itself, is answered by the considerations brought forward in the last paragraph. 'Universal' is indifferent to types and therefore the reflexive property proves, in this case, unobjectionable. Extensive classes, relations and functions build their 'typical' hierarchies. Each class, for example, is determined by its members in the next type below, but 'Universal' is determined by no type and restricted by no type. The same is true of the formal universals, 'class', 'function', 'relation', 'proposition', etc. The formal universal, 'class', for ex-

ample, takes as its instances all classes on the lowest type and all classes on higher types, and it sweeps from the bottom to the 'top' of the class hierarchy, without restriction. If this were not the case, it would have been impossible to set up a theory of types and to argue that references to *all* classes are meaningless. The same is true of the formal category, 'proposition'. It is this formal category which enables Wittgenstein to speak of all propositions without violating types. Thus his assertions need not be meaningless, as he insists they are.

Much confusion has resulted from the failure to recognize that extensive classes, functions, etc., which are restricted by types, presuppose formal categories indifferent to types. Thus the typical hierarchy of classes presupposes the categorial form 'class'; the hierarchy of propositions presupposes the categorial form 'proposition', etc.; but all of these categorial forms will be indifferent to types. Thus, 'the class of all classes' may be contradictory or meaningless, but the categorial form 'class', of which every class is an instance, will be neither. It is the categorial form 'class' which permits us to make assertions about all classes. Instead of saying that all classes are restricted to types, we assert that "being an instance of 'class' entails being restricted to type". Similarly, instead of talking about *all* propositions, we assert that "being an instance of 'proposition' entails being either true or false". Herewith the typical difficulties disappear. Instead of talking about all classes or all propositions, we assert a formal connection between universals.

Thus the foundations of extensional logic are made to depend upon intensional logic, since only in terms of intensional concepts can we give a meaning to essential propositions in extensional logic. Logical entities, which are confined to types, will presuppose formal categories which are indifferent to types; type-generating relations such as ε will presuppose relations such as 'instance of', which are independent of types, and the structure of extensional logic cannot be justified without formal categories and the relation 'instance of'.

But many logicians would resist any attempt to bolster up the foundations of extensional logic with intensional logic, and would, no doubt, regard such a procedure as the collapse of the rigor and

universality which extensional logic has made possible. To this we may reply that extensional logic (such as that of *Principia Mathematica*) will not stand alone anyway. Thus such primitive propositions as 'For every p, q, p or q materially implies q or p' could not be known to be true unless the corresponding 'strict' implication were known to be true, and hence nothing could be known to be true in the whole system of material implication, unless certain intensional propositions, which do not belong to it, were known to be true. For we could not know that the permutation of 'p or q' *always* leaves its truth-value the same, unless we knew that this was *necessarily* so. This necessity, however, is never asserted in material logic.

To state the theory of types we require the formal categories 'class', 'proposition', etc., of which all classes and all propositions are, respectively, instances. And thus the significance of the propositions of material logic will depend upon the introduction of intensional universals, such as 'class', 'proposition', etc., together with the 'instance-of' relation, which are not a part of the system. But intensional concepts such as 'possibility' and 'necessity' will already have been introduced into material logic, since we must be able to certify the truth of the primitive propositions.

3. TRANSCENDENTALS

We shall define a transcendental as a universal of which all universals are instances. It follows that every transcendental is an instance of itself, and, secondly, that every transcendental is an instance of every universal of which all universals are instances. That is, every transcendental is an instance of every other transcendental. These three properties, the latter two following from the first, give the nature of the transcendental.

But it should be remembered that when we speak of 'all' universals we do not presuppose classes. Had we more space we would always say: "φ is an instance of 'universal' entails φ is an instance of 'transcendental'."

As examples of transcendentals we may take 'being', 'universal', 'predicate', 'one', 'unity', since they have the three properties (above) essential to transcendentals. How many of these transcendentals there are cannot be determined, for there is no way

of delimiting their number. All that can be done is to specify those properties which identify them. A general rule may also be stated. If any universal is equivalent to a transcendental (*i.e.* if any universal has the same instances and is an instance of the same universals that a transcendental is an instance of), it is itself a transcendental. Thus 'non-plurality', which is equivalent to 'one', is also a transcendental.

The three properties determining transcendentals have a unique position in the realm of universals. They are not themselves transcendentals, since not all universals are instances of them, but they are necessarily instances of all the transcendentals and all the transcendentals are necessarily instances of them. All of this follows from the definition of the transcendental. We cannot say, however, that each of these defining properties is an instance of itself, and of the others. Thus 'having all universals as instances' is *not* an instance of itself and, hence, is not an instance of 'instance of itself'; but it is obviously an instance of 'having all transcendentals as instances'. 'Instance of itself', again, is not an instance of 'having all universals as instances' but *is* an instance of 'having all transcendentals as instances'. 'Transcendental', which is a compound of the three properties determining a transcendental, is itself a universal, but obviously it is not a transcendental, or an instance of itself. Thus though the transcendentals (being, universal, predicate, one, unity, etc.) cannot be defined, as the Scholastic tradition insisted, 'transcendental', which is not itself a transcendental, is easily defined.

From the above considerations follows the first restriction of the transitivity of 'instance of'. Any universal φ is an instance of each transcendental and each transcendental is clearly an instance of those properties which define a transcendental, but it does not follow that φ is an instance of these properties. For example, 'blue' is an instance of each of the transcendentals ('being', 'universal', 'predicate', 'one', etc.) and each of these transcendentals is an instance of the defining properties ('having all universals as instances', 'being an instance of itself', etc.); but it does not follow that 'blue' has all universals as its instances or that it is an instance of itself. The other restriction of the transitivity of 'instance of' will be considered in section 4. There we shall see that 'instance

of' is necessarily transitive only when confined to the hierarchy of formal categories, *i.e.*, formal universals.

4. FORMAL AND MATERIAL UNIVERSALS

We are concerned here to differentiate *formal* categories (or formal universals) from *material* universals, and then to show how formal universals form hierarchies, and, finally, to exhibit the interrelation of these realms of universals.

In the first place, it is obvious to anyone who understands the meanings of the word 'hardness' that it means a *quale* or material universal. And likewise everyone will recognize such concepts as 'unity' and 'homogeneity' as formal categories, for the former specify content while the latter specify only form. But we must attempt to distinguish them more definitely.

The epistemic differentiation of formal categories and material universals is *a priori*. For it belongs to the nature of formal categories, that is, it is essential to formal categories, that they can be understood when an eidetic instance is given (thus 'number' can be understood when a particular number is given). But material universals, if they are to be known, require an *anschaulich* exemplification, *i.e.*, they require the presentation of an existent individual which they characterize (thus the word 'blueness' could not be understood without a blue example).

Closely related to this epistemic differentiation is what we may call the 'evidential' differentiation. That is, the evidence for assertions concerning the realization of formal categories can (according to their nature) be found in the realm of universals and propositions, while material universals require (according to their nature) concrete, *anschaulich* evidence, because what they apply to are temporal, concrete events. Thus the final evidence for 'χ is white' must be a concrete fact, while the evidence for 'χ is numbered' need not be a concrete fact.

Formal categories have the further distinction that they take other universals as instances, but no universal is ever an instance of a material universal. Thus 'proposition' takes 'categorical' as an instance, but a material universal like 'horse' could never have another universal as its instance.

Formal universals have *instances* while material universals have

no instances but only the individuals they characterize. (These relations, 'instance of' and the characterizing relation, have already been distinguished.)

But even though we were able to pick out no more than one formal category and one material universal, the two orders of universals could be distinguished none-the-less. For a formal universal is always defined exclusively in terms of other formal universals, while a material universal must always be defined in terms of material universals. Again, we can observe that all material universals are instances of certain formal universals, but not conversely, and that formal universals are sometimes instances of themselves, but that material universals never can be.

In considering the possibility of hierarchies of formal and material universals, it is important to notice that it makes very little sense to speak of a hierarchy of universals without specifying the relation which determines the hierarchy. It is obvious, for one thing, that the species-genus relation (where it is not limited to the species and its *proximate* genus) can determine a hierarchy of universals just as well as 'instance of' can. Thus we have: blue is a species under color and color is a species under sensuous quality and therefore blue is a species under sensuous quality. This is a hierarchy of material universals as determined by the species-genus relation. But this relation can also determine a hierarchy of formal universals. We have, for example 'categorical', which is a species under 'proposition', which is itself a species under 'logical entity'. This permits us to infer that 'categorical' is a species under 'logical entity'.

It will be apparent at once that the material and formal hierarchies determined by the species-genus relation will remain distinct. For it would be impossible for a material universal to be a species, or a kind, of a formal universal, or conversely. Such a thing was excluded by the above differentiation of formal and material universals.

But it should also be clear that 'instance of' and the species-genus relation are altogether different. Thus while it is *impossible* for a material universal to be a species, or a kind, of formal universal, it is *necessary* for every material universal to be an instance of formal universals. For one thing, each of them must be an instance of 'Universal'. Moreover, material universals are (typi-

cally) species under other material universals, but they could never be instances of other material universals. For, as we have seen, material universals have no eidetic instances, no *instances* of any sort. On the other hand it is possible for a universal to be both a species under a universal and also its instance. Thus 'formal universal' is both a species, or a kind, of 'universal', and also its instance. That is, 'formal universal' is both a kind of 'universal' and also an example of 'universal'. Thus, though the two relations of which we are speaking are quite different, they do not exclude one another and may hold between the same terms.

The hierarchies determined by 'instance of' will necessarily be different from those determined by the species-genus relation, since 'α is an instance of β' does not imply that α is a species under β, nor conversely. But neither relation will form hierarchies which bridge the realms of material universals and formal universals. The hierarchies determined by the species-genus relation will naturally be confined to the realm of material universals, or to that of formal universals, since a material universal can never be a species under a formal universal, nor conversely. And the hierarchies determined by 'instance of' will be confined to the realm of formal universals, since 'instance of' when it crosses from the material to the formal realm is not necessarily transitive. Thus the following syllogism is seemingly valid and its premises are true. The only way to account for the falsity of the conclusion is to recognize that 'instance of' is not transitive in this case.

White is an instance of material universal.
Material universal is an instance of formal universal.
$\therefore$ White is an instance of formal universal.

The premises in this argument are *both* true. It may appear paradoxical to say that 'material universal' is an instance of 'formal universal', but the differentiation of formal and material universals (above) quite settles the point. Though 'formal universal' and 'material universal' are the two kinds of universals, 'material universal' is an instance of 'formal universal'. Though all the instances of 'material universal' are necessarily material universals, it itself is a formal universal, according to the above description of a formal universal.

It follows that any hierarchy determined by 'instance of' and having 'material universal' as a link cannot exhibit transitivity and

therefore cannot be a hierarchy. And it is clear that any hierarchy which begins in the realm of material universals must involve 'material universal' as a link, for all material universals are instances of 'material universal'. It would follow, therefore, that no hierarchy determined by 'instance of' can contain a material universal and that hierarchies so determined are restricted to the realm of formal universals. This will furnish a further differentiation of the formal and material realms of universals.

The other restriction to the transitivity of 'instance of' has already been mentioned. The following argument will exhibit this failure of transitivity.

> Proposition is an instance of universal.
> Universal is an instance of 'instance of itself'.
> ∴Proposition is an instance of 'instance of itself'.

That is, 'proposition' is an example of a proposition. The falsity of this conclusion serves as a warning that when α is an instance of β and β is an instance of $\varkappa$ and $\varkappa$ is a defining property of β (or of βs) we are not permitted to infer that α is an instance of $\varkappa$. This suggests, of course, that when we assert that α is an instance of β and β is an instance of $\varkappa$, we are using 'instance of' in two different senses. In 'α is an instance of β' (*e.g.*, 'Proposition is an instance of Universal') we are asserting that α is an instance of a transcendental predicate β, while in 'β is an instance of $\varkappa$' (*e.g.*, 'Universal is an instance of instance of itself') we are predicating $\varkappa$ *per essentiam*, to use the Aristotelian terminology. The falsity of the conclusion in the above syllogism is hereby explained by the fact that 'instance of' is used in two different senses in the two premises.

It would appear, in fact, that the only way to avoid the arbitrariness of our two restrictions of the transitivity of 'instance of' is to accept in a revised form (so that it applies to universals exclusively) the Aristotelian doctrine of predicables. Accordingly, we shall say that 'instance of' may relate subject and predicate *per essentiam* or *per transcendens* and is only transitive and, therefore, could only build hierarchies when confined to one of these two modalities, or to a combination of them which is specified below.

The other restriction of the transitivity of 'instance of' cannot be explained, however, without adding another modality of 'instance of'. When we say that 'White is an instance of material universal' (in the syllogism above) we are not relating subject and predicate

per essentiam or *per transcendens*. We are asserting that 'white' is an instance of a formal category which is neither its essence nor a transcendental. The third modality of 'instance of' will therefore be *per categoriam*.

But we shall need still another modality. For it might be said:

'Predicate' is an instance of 'what logicians are interested in' (or 'what serves some purpose').
'What logicians are interested in' is an instance of material universal.
∴ 'Predicate' is an instance of material universal.

The falsity of this conclusion is to be explained by the fact that 'instance of' in the minor premise is used in a special sense. 'What logicians are interested in' does not determine 'predicate' as its category or essence or transcendental. It is predicated, we may say, *per accidens*. Thus even in the realm of universals there are accidents. It may be remarked in this connection that all systems which treat 'what I am interested in' or 'what serves some purpose' or any other such material universal as logically fundamental are laying their foundations on a logical accident. The only other alternative would be to maintain, what is certainly false, that 'what I am interested in' is the category or transcendental or essence of 'predicate'.

It will be obvious, of course, that, if α is an instance of β *per accidens* and β is an instance of γ *per accidens*, that α is an instance of γ can never be inferred. But 'instance of' will always be transitive when α is an instance of β and β is an instance of γ, and 'instance of' is *per transcendens* in both premises or *per essentiam* in both premises, or *per essentiam* in the first premise and *per transcendens* in the second. Also the relation will be transitive in 'α is an instance of β *per categoriam* and β is an instance of γ *per transcendens*', for in this case we can infer that α is an instance of γ *per transcendens*. In other cases the 'instance-of' relation would appear to be non-transitive.

These four modalities of 'instance of' make it impossible to construct a calculus of universals with this fundamental relation as base. We maintain, however, that the structure of universals determined by 'instance of' will remain an ultimate foundation of any system of universals.

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PROBABILITY AND THE PHILOSOPHIC FOUNDATIONS OF SCIENTIFIC KNOWLEDGE

I

THE compulsory resort to the methods of probability in quantum physics has thrown a cloud upon the truth-value of science, by seeming to undermine the belief in causal determinism, on which scientists grounded their faith in scientific knowledge, without providing anything satisfactory to take its place. As the argument goes, the fundamental microscopic entities of nature, the electrons, protons and photons, are now revealed as not obeying the principle of cause and effect (or at least as not chartable by scientists in conformity with this principle) and as amenable only to statistical treatment. Since these microscopic entities constitute the fundamental stuff out of which are made the ordinary macroscopic entities of observation, it is held that the latter, too, do not really obey the principle of cause and effect, and that their apparent causal determinism is really the result of averages of microscopic processes which individually do not obey causality. The macroscopic laws, which had hitherto been grounded on causality, are therefore to be restated—so the argument runs—as statistical formulations, reached by the same method of probability as applies to the study of the microscopic individual entities.

So far there would seem to be no question of undermining the faith in scientific knowledge—only a change in constitutional *régimes* which leaves the specific laws intact. We had formerly believed that reality was governed by causal determinism, and the laws of science were formulated on that assumption. Now we find that the fundamental stuff of reality is so to speak statistical and probabilistic and the laws of science at all levels have to be restated as statistical formulations. The change, it would seem, is analogous to the change in politics from a monarchy to a republic: the laws are the same; only the authority behind them instead of being royal is national. The plain man would not see anything worth getting excited about. But here the argument introduces another factor into the situation. If it were merely a case of substituting a probabilistic or statistical structure for reality in place of the old ontology of causal determinism, there would be no pro-

blem except that of baptizing the old causal laws with a new statistical nomenclature. But in probability the difficulty is that the scientist finds himself with no satisfactory ontology which can stand as the ground behind his statistical formulations. The only ontology that seems to be permissible, in view of his inability to chart electrons causally and in view of his forced resort to the method of probability, is to the effect that the fundamental constituents of reality are *undetermined* and obey no structural order. This, however, makes his statistical formulations—which are after all from an intellectual point of view *determinate*—something of a complete mystery. Reality is revealed as chaotic, and yet the scientist formulates a statistical order and statistical predictions which within limits of approximation are as definite and as satisfactory as the old causal laws formulated on the belief of a causal determinism governing nature.

The paradox is piquant. Because he does not have a satisfactory ontology with which to back up his formulations of probability, the scientist is ready to become sceptical of their truth and to look upon them as subjective illusions, although all the practical tests of scientific truth—the ability to predict the future, the ability to produce differential effects by varying the conditions of experiment, and finally the ability to incorporate the theory into the whole system of rational knowledge—are confirmed in the case of the statistical mechanics of quantum phenomena. One may say that science has been stricken with the germ of scepticism at the very height of its prosperity and health. And this is all because in connection with probability the scientist does not have a solid ontology to lean on such as he was accustomed to have in the case of his causal laws.

That instead of the truth-value of science being an illusion the illusion may be in the quest for a realistic ontology; that probability-science may very well get along without such an ontology; and that in the past the scientist's belief in an ontology of causal determinism may have had no more to do with the success and truth-value of science than the fabled fly on the coachwheel—all these thoughts do not enter the sceptical scientist's mind. These are, however, some of the propositions which we hope to demonstrate in the course of this paper.

It would be possible to begin with an analysis of causal reasoning in science and show that, so far from involving an ontology of causal determinism, this reasoning rests on causality as expressive of an intellectual method of anticipating phenomena, which method is conditioned by certain properties of the human spirit and by certain guarantees of relevance to reality (without complete correspondence such as is demanded in an ontology of causal determinism). It would then be possible to show that the method of probability similarly requires no ontology but justifies itself by the intrinsic and immanent guarantees of intellectual method. And finally from this it would be possible to show that probability and causality, considered as methods rather than as involving ontologies, do not contradict but rather supplement each other as two phases of a common progress of scientific analysis. But instead of following this procedure it may be better to go the other way about, and begin with an analysis of probability, whose paradoxes, because they have a fresher actuality, may prove more stimulating to reflective thought.

II

The theory of probability has been developed since the seventeenth century, and during most of the time of its development its philosophic cast was conditioned by the dominant belief in an ontology of causal determinism. The ultimate structure of the universe was given over to causal determinism, and a complete knowledge of that determinism would be reflected, it was thought, in causally formulated laws and exact predictions. Probability, however, came in in connection with the human situation of "part ignorance, part knowledge" (as Laplace put it) in reference to certain phenomena. It was in this spirit that nineteenth-century physicists, who had hitherto looked askance at probability as a mere mathematical game, at length consented to utilize it in connection with the kinetic theory of gases, getting thereby a provisional and inferior knowledge which they hoped later on to be able to replace by a more detailed and exact knowledge formulated according to causal principles. In the meantime among the theoreticians of probability a revolt broke out against the classical conception of probability. In part the revolt was directed (as with Cournot)

against the conception of probability as representing a subjective viewpoint based on ignorance; in part it was directed (as with Ellis and Venn) against the rationalistic *a-priori* measurement of probability, which was indissolubly linked up with the classical conception of probability as based on subjective ignorance. Out of this revolt has come the modern empirical-frequency theory, which has recently been revised and perfected by von Mises.[1] While logical symmetry would make the empirical-frequency theory stand for both the empirical measurement of probability and the objectivity of chance, in contrast to the rationalism and subjectivism of the classical theory as formulated by Laplace, it is only fair to say that the question of the ontological status of chance or probability is dodged or ignored by most of the partisans of the frequency theory. In von Mises's book all formulations of causal determinism are indeed regarded as reducible to the analysis of probabilities, but the theory of the *collective,* which expounds the nature of probability, is aimed at championing the empirical mode of procedure in measuring probability rather than at clearing up its ontological status.

Given the conflicting interpretations of probability, it is rather remarkable that there is agreement both on the mathematical formulas and on their application to specific problems, which constitute between them the positive scientific value of the method of probability. At the same time, if one attempts to express the positive meaning of the method of probability, putting aside the question of philosophic interpretation as secondary, one finds the task very difficult. It is perhaps an illustration of the truth that science does not represent fact, and philosophy the interpretations of the fact, but rather science represents the clarified common denominator of different philosophic approaches, like the strong light at the center of converging beams, without a distinct reality of its own. One may, however, sum up the scientific meaning of the method of probability by a description of its use and function. Accordingly one may say that the method of probability starts with a situation where we believe that we have definite knowledge of the distribution of a certain character in a group or class

[1] Richard von Mises, *Wahrscheinlichkeit, Statistik und Wahrheit,* Vienna, 1928.

of individual cases and where correlatively with this definite knowledge we assign an index of probability to the chance of a particular individual possessing that character. Thereupon in subsequent reasoning concerning phenomena governed by this class-relationship, and particularly in regard to phenomena which represent the interlocking of more than one class-relationship, we utilize not merely our definite group-knowledge but also our individual indices of probability. By this means we infer definite knowledge of group character which we would be unable to infer were it not for the use of the notion of individual probability, and sometimes we are able to infer for an individual an index of probability which is sufficiently high to be utilized as a practical substitute for definite knowledge. Thus, while in dealing with phenomena governed by one class-relationship the aid of probability is largely Pickwickian (since it does not increase our positive definite knowledge), yet in dealing with phenomena governed by complex class-relationships it is an indispensable aid in increasing the amount of definite knowledge that we can infer from a given set of premises. Probability, in other words, plays the same function in increasing knowledge as mathematical operations with imaginaries play in the solution of particular problems. We do not see any real entities corresponding to the mathematical symbol of imaginary quantity, and yet the fact remains that in the context of the mathematical analysis of physical experience it may help us to get real physical knowledge which we otherwise would not have. So, too, with the use of the index of probability: in experience we see a die fall with a particular face, not with a fractional chance; yet the use of the index of probability will give us information concerning the character and distribution of throws which we otherwise would not have.

How we can lean upon probability to get definite knowledge, and the prior question how we can formulate definite knowledge for groups simultaneously with only indices of probability (instead of full knowledge) for the individual cases—these are the questions which a philosophic analysis of probability should answer. It is by their ability to answer these questions satisfactorily that the rival theories of probability are to be judged.

III

As regards the formulation of probability, the classical theory, as given by Laplace, takes its stand relative to the human situation in regard to certain anticipated phenomena. It assumes that we know the group circumstances regarding certain events but not the individual characters. On the basis of this assumption it infers that in a given total possible number of events any one of them is equally likely to contribute to the quota of circumstances for the group. Whence the definition that the probability of a particular event is the fraction of which the numerator is the quota of favorable cases and the denominator the total number of possible cases. In Laplace's own words, which join the condition of equal likelihood to the fractional relationship, "the probability of an event is the ratio of the number of cases which favor it to the number of all possible cases when nothing leads us to believe that one of these cases ought to occur rather than the others; which renders them, for us, equally possible."[2]

The notion of equipossibility in the Laplacian definition has often been singled out for special attack by the partisans of the frequency theory, who have regarded it as an arbitrary prejudice with regard to the way events are realized in experience. In reality, however, the notion of equipossibility is part of the whole Laplacian *a-priori* rationalistic approach to the question of probability. The criticism should therefore bear on the validity of the whole approach rather than on a specific aspect taken out of its context. As regards the whole approach, the obvious criticism is that in an era of science which assigns such an important place to empirical and experimental considerations the Laplacian conception makes probability as remote from experience as was the old-fashioned Continental interpretation of mechanics as an *a-priori* rational science. It gives no indication for example of the necessity of having recourse to large samples of empirical cases if the *a-priori* computation is to be confirmed in experience. This rule of large samples as the condition under which experience obeys rational probability is specially important in the so-called inverse use of probability, where we start with empirical facts and

[2] *Théorie Anal. des Probabilités* II i.

reason back to an antecedent situation. From the Laplacian definition of probability we get no indication why experience should be governed by probability, nor what special conditions are involved in that government. It is true that on this whole question the adherents of Laplace utilize Poisson's conversion of Jakob Bernoulli's theorem into the so-called law of large numbers, which is presumed to govern natural phenomena. But this conversion is quite illegitimate on Laplacian premises; it is like the ontological proof for the existence of God by the traditional rationalists. The crime here is indeed far worse, because the rationalists assumed that thought could directly grasp reality without limitation, whereas the fundamental assumption of Laplace is that rational probability represents a subjective viewpoint based at least in part on ignorance. But if rational probability is subjective and does not govern experience, one cannot make it govern experience by a special theorem of probability erected into a law of nature just for that purpose.

This problem of the relevance of probability to experience is far more important than the epistemological question of how we arrive at the measure of probability, whether *a priori* or *a posteriori*. And on this question the Laplacian conception is involved in an inextricable difficulty. For Laplace true knowledge is a reflection of causal determinism in nature. But quite apart from causal determinism, and assuming that the causal method of inquiry had never been invented, Laplace would have said that true knowledge copies the structure of reality, whatever that structure may happen to be. On the other hand probability was not for him a reflection of the structure of reality—it was a subjective viewpoint, and would have been so even if he had not believed that the structure of reality was modeled on the pattern of Newtonian causal determinism, which necessarily excluded a probabilistic structure. But according to the theory of probability and according to its basic scientific function we may add up individual probabilities (as denoted by fractional indices) and reach definite and true knowledge with regard to groups of individuals. How is this possible? Individual probabilities do not reflect reality but a subjective viewpoint; yet we may add them up to get definite integral knowledge which does reflect reality. The correspondence be-

tween knowledge and reality is not maintained in due proportion. For the correspondence to be maintained individual probabilities should have a fractional relevance to reality, and these fractional relevances would then be addible into an integral relevance or full correspondence. This, however, means that reality should be conceived as supporting several degrees of intellectual formulation, each according to its degree of relevance—a view quite foreign to Laplace and to the people who accept his position. Abstracting, as we have done, from his belief in causal determinism, one may qualify his underlying viewpoint as a commonsense realism, which attributes to reality a structure corresponding to the intellectual formulations of a given time or of a given sort, but which refuses to see in reality a structure capable of supporting modal affirmations or a hierarchical intellectual analysis. But without such a flexible conception of reality, a conception of reality as supporting at one and the same time "fractional" probability and "integral" determinate knowledge, the problem of probability is, as we shall see, fundamentally insoluble.

A confirmation of our thesis, or at least of the difficulty involved in realism, may be found in the embarrassments of Keynes in the opening chapters of his *Treatise on Probability*. Keynes, as a logician, discusses the problem of true and probable propositions, and his discussion is valuable because it puts aside the extraneous question whether the true propositions predicate a structure of causal determinism or any other kind of structure about reality. He is entirely concerned (or at least in Chapters i and ii) with the question of modality in knowledge. He starts with the realistic assumption that reality is the locus of true propositions and that true propositions give us the structure of reality, and also with the rationalistic assumption that rational inference from true propositions yields true propositions. But with reality thus monopolized by true propositions, what is to be done with propositions of probability? He has recourse to the psychological category of belief, with certainty as its highest degree and probability as representing smaller degrees. But this would psychologize probability into a subjective conviction; and to guard against this he immediately introduces the notion of rational belief, or belief based on rational inferences from true propositions. This artifice, however,

has the effect of undoing his original recourse to psychology, for it leaves him again with true propositions and rational inferences from true propositions, the psychological accompaniments being rendered extraneous. With such elements, how can we derive both true propositions and propositions of probability? The difficulty is obvious, and all that Keynes does to relieve it is to have recourse to that traditional ready aid for philosophers in distress—classification! There are two kinds of propositions—primary propositions which assert truth, and secondary propositions which assert a relation of probability. In this way "a man may rationally believe a proposition to be probable when it is in fact false [note the tenet that reality supports only true propositions], if the secondary proposition on which he depends is true and certain". Keynes never explains the genesis of the division of knowledge into primary and secondary propositions, nor how both kinds of propositions can function in the same universe.

Thus the net effect of Keynes' discussion is to make it clear that there is no way of dealing with modality on realistic premises, unless one wants to put propositions of modality into the subjective sphere, which is in essence what Laplace did. And this is, of course, a confession of scepticism.

We turn to the frequency theory. As we have said, its main aim is the epistemological one of justifying and emphasizing empirical considerations in the measurement of probability as against the rationalistic *a-priori* emphasis of Laplace. According to von Mises the measurement of probability is entirely an affair of experience. Probability, he points out, applies to an experiential situation whenever we find events or individuals arranged in a *collective,* and the measure of probability is determined by the properties of a particular collective which describes the experiential situation. For a collective to exist, events or individuals must be so arranged in series that the values of the "relative frequency" of a favorable event or individual, given by the ratio of favorable cases to the total numbers, must approach a certain fixed ratio as the limiting value, when the number of individuals is successively increased. This limiting value, which of course differs for different collectives, is the mathematical probability of the favorable event or individual that we are looking for. In addition

to the condition of the relative frequency approaching a limiting value, von Mises adds another essential condition for a true collective, and that is that the individuals should be arranged in a "random" fashion, so that we cannot anticipate the character of a particular individual except by means of the group character of the collective (which of course allows us only to predict its fractional mathematical probability, not its specific individual character).

It is difficult to accept the claim of von Mises that his procedure is based purely on empirical considerations without any *a-priori* elements. In the first place the whole idea of arranging events or individuals in numerical series is not an empirical affair. The most that is given empirically is the events or individuals to be arranged and counted by number—not the principle by which we number them, nor the events or individuals *qua* numbered. Experience, we may say, gives us the matter of the series, not the principle of form, nor the combined structure of matter and form. In the case of the limiting value there is still less of an empirical basis. The limiting value is not even established empirically in the sense that one may claim that such and such a number of events is given empirically; we should have to wait to the end of time to establish it empirically. The limiting value is rather assumed in advance of the operation, and it is only confirmed empirically—which is quite a different thing from being established empirically—when we draw an approximate correspondence between the converging series formed by the numbered events and the ideal mathematical series of which the assumed probability-value is the mathematically demonstrated limit.

In general it may be said that what the empirical-frequency theory has done is to formulate rules for the verification of *a-priori* rational probability. Therein lies its great scientific service. But the refusal of its partisans to have anything to do with *a-priori* probability, their refusal to bring together into a systematic philosophic conception the moment of *a-priori* anticipation and the moment of *a-posteriori* verification, not only leaves probability with a very uncertain epistemological status, but makes a complete muddle of the problem of modality. In a pinch one might accept the empirical reality of the collective, with its coexistence of individuals and

the group, but even if this were done it would solve only the problem connected with the set-up of scientific probability. In so far as certain relations of causality might be reduced to a collective of underlying individuals, the solution of this problem would also be included (without, however, explaining why in the past we were able to have definite scientific knowledge without the intervention of the conception of the collective). But to do away completely with the problem of modality we should have to reduce every phase of our knowledge, every phase of experience, to the operation of a collective. We should never be able to say 'A is A', or 'this is an individual', 'this is a group'—or even, 'this is the *notion* of a collective'—without having to represent to ourselves the complicated relationships involved in von Mises' theory of the collective.

This is, of course, absurd; and it cannot be said that even if one swallowed the notion of a collective, with its union of disparate elements, as an empirical fact, one would be in any way advanced in resolving the problem of probability *vs.* determinate knowledge. In the logical sense we should still have to face the question of the relation of propositions of determinate truth to propositions of modal truth. And on this question the frequency theory, if it attempted anything different from Keynes, could grasp only the other horn of the dilemma—that is to say, it could accept probable propositions as the fundamental fact and face the impossible task of explaining propositions of determinate truth.

IV

All this is, of course, on the premise of realism, or realistic ontology. The premise of realism, be it said, is not what its champions usually take it to mean, when they oppose it to all other philosophies and in particular to the demon of idealism. When the man in the street affirms realism he has in his mind the necessity of avoiding solipsism and safeguarding the independence of the object known from the knower's knowledge of it. In practice, however, his affirmation far overshoots the mark and, in part at least, amounts to a championing of the very subjective idealism against which his attack is directed. For commonsense realism sees

no other way of maintaining the independence of reality from knowledge than by conceiving reality as given once and for all with its characters as revealed and as attributed to it at a given stage of human knowledge. It is not subtle enough to conceive of reality as a surd or limit which is progressively approximated in the march of knowledge, each stage of the approximation involving the independence of the object of knowledge from the phenomenal act of awareness but not depriving future stages of the realistic support for the characters revealed in knowledge. For lack of this subtlety, commonsense realism often finds itself championing as an absolute view of reality that which is relative to a given stage of human subjective development, and championing this against the very progress of realism involved in the progress of knowledge.

The bearing of this on the question of mathematical probability is this. Accept the thesis that reality is a surd or limit to the process of knowledge (a limit not attainable in human experience), and we accept also the view that the ontological counterpart of a given stage of knowledge is not complete or ultimate reality but only a fractional part of it (the precise evaluation of that fraction being outside of human power). With this there are involved two somewhat different but related powers on the part of the faculty of knowledge in its dynamic aspect, which is to say the faculty of judgment. One is the power to increase the fraction—that is to say, to have knowledge which is progressively more adequate or complete with reference to ultimate reality. And the second is the power to operate with a given stage of knowledge and to break that up into parts or fractions, which by an inverse process may give us back the original stage of knowledge. We may express the idea more clearly by means of mathematical symbols. Let A be a given stage of knowledge, or, more specifically, one of the intellectual elements of that stage. Its ontological value is, of course, A/R, R being ultimate reality. It is not a question in the theory of probability of increasing the value of A, but rather of our right and ability to break up A into parts, a_1, a_2, a_3, a_4, a_5 . . . , each part having thereby only a fractional part of A's ontological relevance, but the parts being addible into the original A. The same is to be done with B, so that at the end of the process we may get the

sum A B, not by adding A and B directly, but by adding up their fractional parts.

The reader will readily see that this is all that is involved in the ontological problem of probability (we shall discuss the epistemological question later). And he will also see that the key to our ability to lean on probabilities to get determinate knowledge lies in the rejection of commonsense realism, which by setting up A and B as absolutely given realities removes them from subsequent intellectual analysis. As we have indicated in the case of Laplace, the moment reality is identified with A, B, etc., he has no place to put a_1, a_2, a_3 and b_1, b_2, b_3 save in the realm of the subject, which is of course to deny their ability to give us information about reality. But if we do not identify reality with A, B, etc., but rather with the limit immanent in the whole process of judgment, then a_1, a_2, a_3 . . . and b_1, b_2, b_3 . . . do not need to be put into a subjective universe but maintain their proper relevance to reality.

The procedure followed in analysis by probability is actually followed in every mathematical analysis of scientific data, except that the entities corresponding to those that are called probabilities in a problem of statistical analysis, instead of being called probabilities, are merely called mathematical symbols and let go at that, without any concern for their ontological status. Eddington humorously remarks in *Space, Time and Gravitation,* that distance, and possibly also parallax, are assumed to be part of the physical world-picture, but that if astronomers had to deal with "cubic parallax" that magnitude would be regarded as only a mathematical symbol and not part of the world-picture. Judging from his subsequent work, where Eddington seems to make all science a work of symbols and pointer-readings, with no physical reality, one would have to say that he missed the point of his own observation. For if common sense is arbitrary in assigning to certain magnitudes a physical reality while making the more abstract magnitudes pure symbols in the realm of subsistence, the solution is not to reduce all magnitudes to the status of subsistence, but to give to each its appropriate degree of reality.[8]

[8] The difference between a derived mathematical quantity (*e.g.*, "cubic parallax" or "square root of distance") in relation to the original quantity

Like the ontological problem involved in probability, the epistemological question—how, concretely, we determine probability, whether *a priori* by reason or *a posteriori* by experience—does not require any outlandish theories for its solution, but only the same type of philosophic clarification as is required to establish the origin and limitations of knowledge in general. From the character of the dispute between the rival theoreticians of probability, it is obvious that we have here to do with the traditional quarrel between rationalism and empiricism, which Kant resolved by his formula of criticism, showing that both sides are right and both sides are wrong in their methods of explaining the source of knowledge. In applying the Kantian formula for the solution of the epistemological difficulty of probability, it is not necessary, however, to accept the Kantian metaphysical attitude, with its rigid separation of human experience from reality. Rather do we believe that the essential of the Kantian contribution may be combined with a background of Platonic or Spinozistic ontological idealism (such as we have been expounding here). So interpreted, the Kantian principles may perform their full epistemological service, in the sense of reconciling empiricism and rationalism, without imprisoning knowledge in the walls of the human spirit and without erecting a new realism of the human spirit (a multi-leveled realism, to be sure, but a realism nonetheless) to replace the ordinary commonsense physical realism. The tension of human knowledge, its quest for ultimate reality, is preserved, but within that quest there takes place that division of function and that collaboration between perception and the higher intellectual faculties which Kant outlined. Thus the movement from percep-

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and an individual probability in relation to determinate group character is not one of ontological status but of epistemological character. Owing to the manner in which the group character is discovered (namely, by abstraction from individual cases), the individual probabilities derived therefrom always point, in a more or less Pickwickian fashion, to the empirical individuals, and the group character is confirmed in practice by a counting of empirical individuals under certain special rules; ordinary derived mathematical quantities are worked out without any reference to experience but owe their relevance to reality to the relevance of the parent postulates from which they are derived. This superficial epistemological difference does not alter the fact that in getting determinate knowledge by reasoning with abstract symbols (whether individual probabilities or square roots of distance) we are in both cases using one and the same procedure with one and the same ontological justification.

tion to the various levels of abstract thought, which according to the letter of Kant is a sort of factory movement designed to give the raw material of knowledge the imprint of the various stages, becomes analogous to the Platonic dialectical quest for the Ideas or to the Spinozistic movement of the stages of knowledge. But because this movement of 'transcendentalization' (as it might be called) takes place at the price of abstraction, human knowledge is not complete at the stage of intellection but must always return for synthesis in and with sense-experience. Human knowledge is thus the product of a rhythm that goes from concrete and confused perception to the highermost reaches of mathematical abstraction and then returns in reverse order, applying the more abstract concepts as forms or categories that bind and clarify the more concrete concepts and images into a system. But the system, no matter how full and concrete it may be in its imagery, is never a complete and absolute reality. From Kant's point of view it is a system of phenomena, as opposed to the reality of things in themselves which produce the phenomena on the screen of the human spirit. From our point of view it may be regarded as a partial reality, intuited and systematized by the human spirit; and because it is a partial and not complete reality it cannot anticipate completely the surprises that may be revealed in future sense-experience. It must be ready for completion, that is to say for synthesis, with new elements or new aspects of reality as they come into sense-experience.

It is by reason of the incompleteness of every human intellectual system that all scientific formulations are contingent in their application to experience and must undergo verification. The empirical emphasis of modern science thus finds its explanation in the constitutive nature of the scientific process. But it is not a complete account of the scientific process, as the empiricists claim; nor is it a piece of routine checking against error, as the rationalists claim. It is rather an integral and coördinate element of the scientific process, rightly emphasized today because of the tendency of the human mind to emphasize only the rationalistic side of knowledge.

But a true and complete account must recognize the necessity of both moments, the moment of rational abstraction and the

moment of empirical verification or application. From this point of view the epistemological quarrel between the rival theories of probability may be simply solved by fusing both into one, and making each a coördinate moment of a complete theory.

V

We may now briefly sum up the theory of probability from our joint viewpoint of epistemological criticism and ontological idealism. Let us consider first the theory of probability as a rational schema of anticipation. How is the schema constituted? As we proceed upward from sense-experience, we discern certain forms, like space and time, and certain categories, like universal and particular, and we proceed to order our system of memory-images by means of these notions. At this point the mind, instead of seeking to isolate higher and more abstract universals, turns its attention to the hierarchical situation of sense-images subsumed under a universal or class-relationship. Inasmuch as this situation constantly recurs, the mind sets itself to studying and analysing the universal or mathematically analysable aspect of the situation. In accordance with the spontaneous assumption followed in all mathematical analysis of experience but first philosophically clarified only in Platonic idealism, it postulates that the reality of a universal or class-relationship is distributed in the underlying individuals, and that the individuals, in so far as they are governed by a given universal, contribute between them to the reality of the universal. Given concrete individuals represent, to be sure, the interlocking of other ideal universals, which combine with the given universal to produce completely concrete individuals; but in thought we are able to abstract from these other ideal universal conditions, so that what we have left on the one side is a definite universal and on the other side merely that aspect of the various individuals that is involved in the given universal. In a word, we have not the full concrete individuals, but only their fractional reality or logical possiblity. And these possible individuals add up to give the definite reality of the universal.

Now at this point the mind undertakes to study the functional relationship between the distribution of certain characters in the class and their distribution with regard to the abstract or possible

individuals composing the class. Suppose that a distribution X, Y, Z necessarily inheres in the class-relationship A. In terms of our fundamental ontological attitude, everything that is given in A is contributed by the various possible individuals a_1, a_2, a_3, . . . ; or if we will, it is contributed by the empirical individuals (a_1M_1, a_2M_2, a_3M_3 . . .) in so far as they are qualified or conditioned by the class-relationship A. Hence, from the point of view of analysis, every empirical individual aM, in so far as it contributes to the reality of A, must contribute to the reality of the distribution X, Y, Z. But its contribution to the reality of A is not equal to the whole of the reality of A, but only to its proportionate share, since all the a's must make up between them the reality of A. Hence its share in the distribution X, Y, Z is also merely fractional. Literally speaking, every throw of a six-faced die, in so far as it contributes to the reality of the class-relationship "throw-of-a-six-faced-die", must contain in itself the idea of falling 1/6th six, 1/6th five, 1/6th four, etc. But in an empirical throw other conditions (accidental or non-repetitive factors, as they are often called) add up with the intellectual fractional characters to make the die fall *either* a six or a five, etc. Hence the intellectual prevision (1/6th six, 1/6th five, etc.) must be regarded as expressing not the concrete reality of a throw but its possibility or probability. Nevertheless, the intellectual prevision, though indicating only probability, is not without grip on the reality of the throws, provided we know that the intellectual previsions, though invisible in the individual cases, are really operative in a particular experiential situation. These previsions are considered operative whenever we find that the series of throws, though individually they are *either* sixes or fives or fours, gives us as a whole the distribution demanded intellectually.

Hence we may say that the schema of probability as an anticipation for use in experience necessarily involves the principle of equipossibility as demanded by Laplace, because the equipossibility is part of the rational set-up in the same way as the conclusion that the three angles of a triangle are equal to 180° is part of the rational set-up of geometry. But the application of the rational schema to an experiential situation requires a technique of confirmation by which we establish at crucial points a correspondence

between the empirical frequency of events and the previsions of theory. The rules of confirmation are precisely those given in the empirical-frequency theory, and there is no need to repeat them or to amend them in any way. But these rules, it must be pointed out, already presuppose the self-consistency of rational probability as a hypothesis, which is to say, as a self-contained abstract reality. The rules of randomness and relative expectation confirm the relevance of a particular schema of probability to such and such an experiential situation, but the validity of our theoretical deductions and theoretical manipulations, such as we make when we combine groups to form new groups and anticipate future experience, depends ultimately on the intrinsic truth of the schema itself.

VI

The terms of the philosophic solution that we have given to the problem of probability presuppose an interpretation on similar lines of the method of causal determinism, and also herald the reconciliation of probability and causality. What we have shown is that probability represents a valid method for obtaining a knowledge of determinate order governing sensible individuals. This determinate order governs individuals, not as individuals, but in their group-relationship. It is thus obviously formal, depending, not on a complete knowledge of individuals, but only on an anticipated knowledge of some of their relations. But, as formal, the order reached by probability depends, like all other types of human knowledge, on the twofold rhythm of abstraction from sense-experience and application to future sense-experience. The moment of application or verification involves contingency, not in the formulations of probability themselves, which are determinate, but in their application to new sensible particulars, which are bound to involve new aspects of reality not entirely organizable by formulations based on past sense-experience. The contingency, as we have already pointed out, reflects the passage from less complete to more complete experience and knowledge. There is no room to speak of contingency or indeterminism in reality, for we have already shown that reality in the ultimate sense is the unified limit of the process of intellectual synthesis. The contingency is given only in the human knowledge-situation at the moment of passing from

determinate formulations to more complete determinate formulations.

Considering the limits with which we have surrounded the formulations reached by probability, the question arises whether the knowledge reached by causal analysis is in any way superior. Common sense certainly believes so. It believes that the analysis of cause and effect when carried out to its full extent will give us the actual productive causation of things in themselves and that the laws formulated on that basis will reflect the most intimate properties of the elements of reality. But this is a naïve illusion. A consideration of the progress of scientific conceptions about reality and an analysis of the elements and procedure involved in the constitution of any phase of a scientific conception—according to the method we have followed in analysing the philosophic bases of the theory of probability—will show that the ordinary system of scientific determinism does not represent ultimate reality but is rather an abstract formal schema analysed out of sense-experience, used as an anticipation of future sense-experience, and undergoing repeated revisions and rectifications in its application to sense-experience. In a word, the ordinary system of scientific determinism, which we identify with physical reality, is functionally on the same level as the schema of probability. Neither the specific system in use at a given stage of science, nor any possible scientific system of causal determinism, can be identified with ultimate reality. It always represents a formal aspect of ultimate reality, and for that reason always needs to undergo verification and application in sense-experience.

The reason why we have such a tendency to attribute material or physical reality to a causal system, whereas in the analogous case of probability we regard the schema of probability as formal even to the point of being nominal and illusory, is a matter of the psychology of concept-building, into which it might be interesting to enter were space available. Suffice it to say, however, that in ordinary sense-perception we attach such importance to the geometrical (and hence universal) elements of individual perceptions that, when we later create by abstraction a system based on a purely geometrical conception of objects, we do not realize that we have performed any abstraction but merely believe that we

have pushed aside the illusory, accidental elements of perception. Thus we speak of reality as constituted by 'primary qualities', the secondary qualities being put into the mind as more or less illusory; or we frankly accept, with Descartes, the view that external reality is extension, or, with Einstein, the view that reality is space-time. These instances are sufficient to reveal the tendency of the mind to constitute the world in terms of geometrical (and other universal) abstractions. As a stage in the organization of experience, this tendency is entirely sound; where it is misleading is in the naïve forgetfulness of the fact that it has carried through an abstraction, and that the abstraction must ultimately be applied to and synthesized with the contingencies of sense-experience. So long as we contemplate the world in terms of geometrical abstractions, we see no reason why it should not obey the principle of scientific causality, and this is quite right, because causality in its modern form has been deduced from the geometrical conception of the universe. But we must always remember that the whole geometrical conception is an abstraction, and that the conception of causality cannot rise higher than its source. The logical impossibility of a causal account of molecular and atomic processes could have been anticipated by an analysis of the concepts involved, for it represents an attempt not to formulate a formal determinism expressing an abstract aspect of sense-experience, but to trace sense-particulars in their concrete individuality—a task altogether beyond the power of science. If causality has broken down on the atomic level, it is not because of the atomic level, but because in the course of our complicated intellectual analysis we have unconsciously changed the form of the questions which we address to nature.

As regards the method of probability, the element of class or group stands functionally on the same level as the geometrical element. In both cases we are dealing with an abstract or universal element separated out from sense-particulars. But whereas the geometrical element which forms the basis of a causal system never attempts to deal intellectually with the individuals behind the geometrical abstraction, the secret of the theory of probability is that the class-relationship is combined with a consideration of the underlying multiplicity, a consideration very

formal indeed, but nonetheless enabling us to enrich the amount of anticipated knowledge that we may draw from sense-experience. On the other hand, there is no intellectual quarrel between the causal relations formulated on the basis of geometrical concepts and the relations of probability formulated on the basis of groups and underlying arithmetical pluralities. That is why in so many problems we see causal data incorporated in a statement of probability. *Vice versa,* it is possible to integrate individual formulations of probability so as to give us geometrical causal characters as statistical expressions.

It is in this sense that physicists have spoken not only of reducing macroscopic causal laws to formulations of probability, but of space and time as statistical entities. The sense of these expressions need not be too much exaggerated. It is not a case of abolishing all concepts of continuity for the benefit of discontinuity, but rather a process analogous to the method of breaking up a whole into fractional parts and using the parts to reconstitute the whole. The wholeness of the whole is not thereby abolished, nor the necessity of using the correlative concepts of whole and part.

Instead of saying therefore that causality has been superseded by probability, it is more proper to characterize the recent scientific development as an enrichment of the method of scientific analysis. The old has not been superseded by the new, but has fused with it to constitute a more powerful method for analysing experience.

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THE RELATION OF THE MORAL TO THE AESTHETIC STANDARD IN PLATO

I

PLATO'S views on art have suffered from two fundamental misinterpretations. He is commonly supposed (1) to have identified the essence of art with a pale imitation of ordinary objects; and (2) to have judged of the excellence of art by moral standards. That Plato defined art not as imitation but as imagination has been persuasively argued by R. G. Collingwood.[1] It remains to examine the grounds of the belief that Plato "reduce[d] the value of that pleasant thing called beauty to the moral lesson imparted by an artist".[2] I propose to show that this belief is a fallacy due to two things: (1) neglect or unimaginative treatment of contexts; and (2) the dogmatic exclusion of a possible metaphysic.

The material most frequently used to support the thesis that Plato's attitude toward art is "ultra-Puritanical"[3] is taken from the *Republic* and the *Laws*. The logical looseness of not distinguishing between the place assigned by a writer to art in a scheme of education in an ideal republic, and his general opinion as to the nature of art, would seem too obvious to need pointing out, if illustrations of the looseness were not even more obvious. It is conceivable, of course, that Plato's notion of poetry as an independent form and his theory as to its wise employment in elementary education should coincide. And he might recommend censorship of music for the old and wise to the same extent and of the same sort as for the young and inexperienced. But such a coincidence does not go without saying. The probabilities and indeed the facts are against this interpretation. Plato's limitation of dancing and music to two types, his exclusion of all or most drama, his prescriptions of the form and content of poetry in the parts of the two dialogues dealing with education, are relative to a proposed state-policy, not absolute expressions of taste or definitions of fine art. He virtually says in these contexts that *if* a certain sort of polity be devised and a certain sort of character fostered, and *if* the process of learning and

[1] "Plato's Philosophy of Art", *Mind* (N.S.) XXXIV 154.
[2] E. F. Carritt, *The Theory of Beauty* 64. See also 57.
[3] Havelock Ellis, *The Dance of Life* 317.

mental growth be as he understands them, *then* it follows that such restrictions upon the employment of art-forms as he suggests are necessary. This is not direct or primary theory of art, but theory of education, morals, and politics. Indeed, the very tone of self-denial with which the prohibition is announced suggests that if Plato were not speaking under an important control, his critical remarks on the arts would wear another aspect. He is clearly repressing something because of the momentous nature of the practical business in hand. "The magnitude of the sacrifice is the true measure of the value he ascribes to the end for which he purposes to make it."[4] The so-called "ultra-Puritanism" is the "self-denying ordinance"[5] of the philosopher-king, not the untrammeled discourse of the mime-writer on the attributes of his gift and its products. He is speaking as the founder of a state and not as a poet;[6] he acknowledges the high poetical charm of poetry which he claims is not meet for the ears of children who are to become "sons of freedom";[7] his strictures are necessary precisely because of the popular ignorance of the true nature of poetry,[8] and the logic of his own practical situation in regard to fine art is so distasteful to him personally that he would welcome refutation.[9] He changes the degree and scope of his prohibition according to circumstances: certain plays are allowed in the *Laws* though none in the *Republic;* recreation justifies what elementary education forbids; and the old and wise may be indulged when the unformed mind may not. Not in these passages may one discover the Socratic conception of beauty or of art, for the utterances are relative to practical situations. In the *Hippias Major* the search for the meaning of beauty in itself is staged, but no answer is given. But if Plato had written another *Hippias Major* late in life and in a more dogmatic and less inquiring spirit, he might have given explicitly what Croce thinks he never achieved: a theory of art and beauty as distinct functions, and not as mere medicine of cherries.

But may one learn nothing of a man's views on art from his doctrine of the place of art in education? While one may not derive

[4] A. E. Taylor, *Plato, The Man and his Work* (2nd ed.) 280.
[5] Walter Pater, *Plato and Platonism* 244.
[6] *Republic* II 379. [7] *Ibid.* III 387.
[8] See R. G. Collingwood, *op. cit.*, interpretation of *Republic* X 595.
[9] *Republic* X 607.

from the *Republic* and *Laws* Plato's whole and free aesthetic theory, one may learn much of his applied aesthetics and his notion of the relation of art to morals. If Havelock Ellis's sayings that "Plato himself was all for goody-goody literature and in our days would be an enthusiastic patron of Sunday-school stories",[10] that Plato "would have the poet solely concerned with maxims of virtue",[10] and "would forbid any novelist to represent a good man as ever miserable",[10] are a gross caricature, still they are the distortion of the truth that Plato believed art to be intimately related to morals, and of primary significance in the education of children.

In Books II and III of the *Republic* and II and VII of the *Laws* Plato is occupied, as we should say today, in the revision of the liberal-arts curriculum of the schools in the light of the changing social and ethical ideals of the time. He finds upon examination that the stories fed to the children, the melodies and rhythms which were conditioning their reflexes, and the popular scriptures which were determining the tone of public taste and feeling, were lagging behind the most enlightened conception of the good. For men's ideas of justice and righteousness are a moving image of the eternal justice, and the poetry of religion has from time to time to be brought up to date as man remakes the gods in his contemporary image. Two facts, then, forced the revision: the psychological power of art, and the superseded ideas conveyed by the popular poetry. If, on the one hand, musical rhythms and poetry were not so effectual, or, on the other, their morale and 'teaching' had not been, in this case, so naïve and outworn, the revision would not have been so imperatively indicated. But "rhythm and harmony find their way into the secret places of the soul, on which they mightily fasten";[11] "from imitation [men] come to be like what they imitate";[12] and he who takes pleasure in unwholesome art will surely become like that in which he takes pleasure.[13] Moreover, that new selfconscious ideal of humanity which Plato envisages, thanks to the philosophical enlightenment of which he is a conscious and critical part, contradicted and rebuked the characters and forms existing as models in Hesiod, Homer, the dramatists, and in the Lydian mode.

[10] *Loc. cit.*
[11] *Republic* III 401.
[12] *Ibid.* III 395.
[13] *Laws* II 656.

In the sections on education in the *Republic* and *Laws* Plato is prescribing, then, for the adaptation of elementary culture to the production of the highest moral end. And what is this end? It is that ideal of character and that scale of moral values which the best ethical reflection of the time posited. The following qualities are the virtues which criticism has determined to be absolute or godlike in their nature. It is these, then, that must be attributed to beings made charming in fiction.

1. *Truthfulness.* This seems to be the best single term to suggest that Platonic idea which cannot be adequately rendered by any single English noun. Plato means that an ideal character has both knowledge and the disposition to act upon the basis of it. Moreover, the knowledge he intends is philosophical rather than factual. "Being deceived or uninformed about true being in . . . the soul, and in that part of them to have and to hold the lie, is what mankind least like,—that, I say, is what they utterly detest."[14] "The superhuman and divine is absolutely incapable of falsehood."[15] Through the magic of art Plato would have children learn to admire the ability and disposition to place correctly things, values, and persons, to "have in their souls a clear pattern" of each thing.[16] The properly educated man rates his own abilities as Spinoza would have him, neither too high nor too low. He refuses to stultify himself with words substituted for actualities or with self-flattery. He has a passion for seeing things as they are, and culture enough to do this intelligently. Our word wisdom will not do for this virtue, because in our usage it tends to be a term of grandiose praise. Our word knowledge fails because it tends to connote information without insight into relative values or a good will. In the conception of knowledge as virtue, or truthfulness, is included experience, learning, intelligence, sensitiveness, and vision. This is the first "mould" into which we are to cast our ideas about divine things.[17]

2. *Benevolence.* "God is good and the author of good."[18] This second quality to be attributed to the ideal character rests on the belief that the strongest power in the universe is in a sense continuous with the human sense, though "eminently"—as the Scho-

[14] *Republic* II 382.
[15] *Ibid.* VI 484.
[16] *Ibid.* II 379.
[17] *Ibid.* II 383.
[18] *Ibid.*

lastics would have said—ethical. The last word in the interpretation of human affairs cannot be ironical, or cynical, or barely descriptive. The evil in the world must be accounted for by the recalcitrancy of elements which resist the operation of the well-wishing Demiurge. Plato agrees with Bertrand Russell that benevolence is a primal virtue to be inculcated in infancy, but he would accomplish his purpose, not like Russell, by manipulation in the nursery, but by a universal figuring forth of a "power not ourselves that makes for righteousness". If kindness is metaphysically significant, if the Highest Power is also Mercy and Love, then "young and tender things" should imbibe benevolence from their early myth-reading.

3. *Self-sufficiency.* "The good man is . . . enough for himself and his own happiness."[19] "The good differs from all things in its self-sufficiency."[20] "Things which are at their best are least likely to be altered."[21] The pronouncement that God is not to be represented as changing or susceptible to external influence follows from Plato's assignment of high moral value to stability and superiority to the accidents of fortune. The admirable person is not only not hysterical, happy one moment and gloomy another, not easily deterred when once resolved, but scarcely even plastic. As contrasted with the clever, emotional, dramatic person, the highest type of character for Plato is symbolized by the log leaning back that remains after the brilliant flickering of twigs is over.

The inclusive quality of self-sufficiency or personal poise implies as part of itself courage. For fear is weakness and the stable man is not oppressed or determined by events outside himself. Your right Achilles has self-control in peace as well as war and does not whine or show pique at the fortunes of love. A brave man not only knows how to meet the enemy in battle but the temptations of peace, luxury, the winecup, and women, as well. He is of equal mind, of substance, strength, and independent spiritual mass. Unaffected by heat or cold, wine or fatigue, lust or threat, war or luxury, he goes his own way with undivided mind and temper; for he is whole of life.

Now if for Plato these are the virtues *de rigueur,* and if the agencies of the *Republic* are to be put in train to produce these

[19] *Rep.* III 387.
[20] *Philebus* 60.
[21] *Rep.* II 380.

virtues in the young, and if the arts are "charms" which "lead younger men with dutiful delight to receive good dispositions",[22] it follows that the gods and heroes of poetry must be pictured as wise, benevolent, and unmoved by fortune. The ideal figure is not Havelock Ellis's goody-goody weakling, but the Socrates of the three dialogues that depict his trial and death. The program of moral education excludes the possibility of the haphazard projection on to Olympus of the medley of human qualities we see about us. The Maker of the world and the demigods must appear honest with themselves, stable, courageous, and righteous.

So much for the moral content of the liberal-arts curriculum that Plato advocates for the elementary schools of the good city. His program requires an analogous prescription of the forms of the material to be used. Numbers and shapes may symbolize and inculcate virtue as much as ideas and images. Rhythms and melodies and proportions may, on the one hand, nerve and sober, or, on the other, relax and split up the unity and centrality of the person. Therefore, if, as Plato believed, the music of the lyre should draw on toward the music of philosophy, and the tragedy of the theatres toward the drama of wise statesmanship, then the insinuating forms of music and drama must be regulated as much as the matter. Because Plato believed that the patterning of elements in art is as persuasive as its significance, he prescribed for it too in his curriculum.

His first formal canon is simplicity. Simple metres in poetry, simple modes or scales in music, simple instruments for the performance of music, simple literary manner—the narrative and heroic and not the dramatic—are enjoined. Inversely, the mixed or panharmonic style in music which allowed many complex changes of effect and relation, flutes and "many-stringed curiously harmonized instruments", program-music of the frankly imitative type, and dramatic literature, are excluded. Plato's assumption is that singleness of manner, and persistency in one strain or key or attitude, is the counterpart and producer of thorough and consistent character. "Simplicity in music [is] the parent of temperance in the soul."[23] In reflecting upon this canon it is necessary to remember that simplicity is a relative term, and that for our place in evolu-

[22] *Laws* II 670. [23] *Rep.* III 404.

tion and mental habits that might be simple which was complex and bewildering to the Greeks. If we may not go so far as stating this rule of Plato's in the words of Norman Douglas, "Avoid that facile, glib, composite note, the monkey-tricks of cleverness", we may perhaps ask with Taylor "whether Socrates may not be right in what is his evident conviction that the greatest art does require a certain austerity and severe restriction in the matter of its vehicles of expression".[24]

The second formal canon is closely allied with the first and is clarity or rationality. The reasonable soul is in part the product of perspicuous art. "Our pattern wise man has his pleasures in accordance with true reason."[25] He respects the "might of geometry", and he understands the conception of God as a celestial gauge. Intelligence as a personal characteristic is induced, other things being equal, by delightful patterns in which the mind can securely find its way about, in "melodies which have a natural truth and correctness",[26] in imitations which are right not only in quality but in quantity. Simple ratios, easily grasped, in poetic metre, rightness of proportion in statues and paintings, are the indices of the presence of grace in these arts. Arts maintain their title by reference to a standard of measurement, and effects that are merely bizarre, curious, or sentimental, and cannot be rationally demonstrated, are unacceptable in the ideal state.

The treatment of art in relation to education and morals in the *Republic* and *Laws* may be summarized as follows:

1. The moral quality of a political whole is its most important attribute and quality.

2. To produce high moral quality in the citizenry is, therefore, the most important function of the executive of a state.

3. High moral quality consists in the activity of the following virtues: truthfulness (freedom from illusions about oneself and capacity to place everybody and everything in a correct scheme); benevolence; courage; the undivided mind and temper; a sense of rational pattern and logical order in politics, art, and common affairs.

[24] *Op. cit.* 280 n.
[25] *Laws* III 696.
[26] *Laws* II 657.

4. The production of desirable moral qualities necessitates an appropriate theory of education and genetics.

5. The required theory of education must rest on correct psychological principles.

6. The images of art may symbolize and express moral qualities and logical patterns.

7. Artistic images and patterns, absorbed by the plastic human imagination, become vital forces.

8. The unconscious absorption of such charms or forces is more effectual in the production of character than rational notions or information.

9. The executives of the state are therefore primarily under obligation to prescribe a curriculum for elementary schools composed of images of truth, benevolence, courage, and poise, in rhythms and patterns, simple, rational, and attractive.

The Platonic view here set forth obviously involves censorship of art, in so far as art is a matter of public concern. It does not, however, involve a censorship of art absolutely intolerable to our modern taste or unintelligible to modern reflection. It emphatically does not involve a censorship which leaves only a feebly pious or objectionably tendential art—the opinion here contested. Nevertheless, one can hardly claim that Plato's is not a controversial position. Exactly what opinions respecting the relation of art and morals does Plato's logically exclude? His doctrine is incompatible with the following beliefs:

1. That popular fiction, myths, spectacles, music, and dancing, do not materially affect the dispositions of the young who live exposed to them and engage in them. That the insensible formation of habits by the constant pressure of attractive stimuli is not a considerable part of the education of children.

2. That ethical liberalism requires that children be exposed indifferently to literature and music of varying ethical tendencies. That the moral code of one generation should not be imposed upon a new one, but that the new generation should be beguiled with images and forms ethically neutral or ethically balanced. The child thus matures with an open mind rather than with a moral set.

3. That in general there is no such thing as a single scale of moral

values or a universally acceptable doctrine of virtue; but that, on the contrary, moral value is entirely relative to the man, the time, and the place.

4. That images and patterns cannot symbolize, imitate, or express moral qualities, but are ethically *nil.* That the moral attitude is compartmentally distinct from aesthetic appreciation and enjoyment.

These four positions on the problem of the relation of art to morals, with especial reference to the education of the young, are all in some measure tenable, and one holding any of them would, *ipso facto,* reject Plato's view. It would seem, however, that the Platonic theory, liberally and imaginatively interpreted, is as congenial to the contemporary intelligent mind as any of these four which contradict it.

II

A second group of passages, metaphysical rather than educational in import, has given color to the belief that Plato confused the moral and aesthetic categories. In various presentations of his doctrine of Ideas or Forms he apparently either identifies Absolute Goodness with Absolute Beauty outright or emphasizes their likeness at the expense of their alleged difference. The Beauty absolute, colorless, formless, and intangible, the topmost rung of the ladder of love in the *Symposium,* is obviously but another name for the Idea of Good, the sun of the intellectual world, the surpassingly beautiful, of *Republic* VI. In the *Hippias Major* abstract beauty and goodness are said not to be separated even as much as the father, the begetter, from the son, the begotten. In the *Lysis* their identity is assumed.[27] In the *Philebus* their similarity is explained as based on their common root, Measure.[28] These references illustrate the truth that Plato envisaged beauty and goodness as falling together in their ultimate definition.

But this unity or likeness of Beauty and Goodness in the world of forms must not be casually interpreted as a confusion of moral and aesthetic categories on the ordinary empirical level, any more than the relation of art to morality in a defined educational scheme can be assumed to be their unconditioned relationship. By the Ideas

[27] *Lysis* 216. [28] *Philebus* 64.

of the Good and the Beautiful, Plato signifies the principles which ought to, rather than those which do, govern behavior and desire, and which men acknowledge upon reflection as the implied goal of their endeavors; but not the actual objects of firsthand desire, or the rules of thumb by which men estimate value in the pressure of practical life. He draws a distinction, he says, between the sight-loving, art-loving, practical class and philosophers. "The lovers of sounds and sights . . . are . . . fond of fine tones and colors and forms, and all the artificial products that are made out of them, but their mind is incapable of seeing or loving absolute beauty."[29] The practical connoisseur, the man of taste, builds up his gallery untroubled by ethical postulates, but then his gallery need not exemplify the essence of beauty. Similarly a moral reformer may not see the relevance of the fineness or nobility of an act to its justice, but he again need have no vision of perfection. Plato does indeed wholly or approximately assimilate goodness to beauty in the world of Ideas on grounds presently to be examined, but his metaphysics of value cannot be controverted by cases loosely picked up of "flowers of evil" or unprepossessing saints.

Though Plato's axiology cannot be disproved by unanalysed instances from the surface of experience, it is unquestionably a controversial position. What is its logical orientation? Plato treats the *Summum Bonum* as single, and the terms goodness and beauty as either equally satisfactory descriptions of it or parallel approximate and important descriptions of it. Thus any theory of value which is finally relativistic or pluralistic is incompatible with Platonism. Such is Helen Parkhurst's, who says that "things of the spirit are . . . pure incomparable qualities",[30] and R. B. Perry's, who says that conflicts of preference are data of value and instances of its ultimate and irreducible relativity.[31] J. S. Mackenzie's view is not identical with but is much more akin to Platonism when he says: "Ultimate good is only to be found in a complex whole in which supreme Worth . . . has to be regarded as containing the three aspects of Wisdom, Love, and creative Power, which, acting in conjunction, produce Beauty."[32] Besides being incompatible with a radical pluralism of values as rooted in distinctions of prefer-

[29] *Rep.* V 476. [30] *Beauty* 165.
[31] Cited in E. F. Carritt, *Philosophies of Beauty* 299.
[32] *Ultimate Values* 157.

ence, Platonism is irreconcilable with a view like Croce's which sharply sunders levels of being from each other, and defines the aesthetic function, in the first instance, by its negative relation to knowledge and morality. How and why Beauty and Goodness are correlated in the "ending end" of life Plato apparently does not think through until late in life, but he always treats them as two names of a single Worth or as two faces of a single Worth. His theory of Ideas is no more anti-aesthetic than his theory of education; it is an essay at defining the complex nature of the human vision of perfection. For him human nature was a unit, and its goal, the *Summum Bonum*, an answering unity.

But there is a second objection to Plato's identification of Absolute Goodness with Absolute Beauty: that the very terms themselves are unmeaning. For, so the argument runs, if you say concrete cases in human experience of beauty and virtue cannot be used in refutation of this Platonic doctrine, then the doctrine itself would seem to be idle verbiage, for we cannot talk about beauty and virtue apart from experience. When phrases are thus vague and empty, it is said, it is all one whether you assert identity or difference, likeness or dissimilarity. The *Summum Bonum* has become mystical in the worst sense of the word. In the spirit of this objection Collingwood, who finds Plato's theory of art strikingly modern and defensible, refuses his doctrine of τὸ καλόν a place in any intelligible aesthetic, because it seems to be a vague undefined term of approbation.[33]

Doubtless Plato's theory of perfection is partly mystical, but it is not on that account irrational. It embodies a justifiable paradox, uncongenial, surely, to single-track minds, but peculiarly satisfying to the thoroughly synoptic temper. The paradox is this: essential charm implies rational order, and, conversely, rational order must ultimately appear as charm. "Poetry and Mathematics"[34] are equally necessary for defining the nature of the final source of value. It is difficult for the ordinary pedestrian mind to keep these two aspects of the metaphysics of Platonic value in balance, but only by understanding their interdependence can one see why Plato identified Absolute Beauty with the Idea of the Good.

The Neo-Platonists and mediæval mystics enlarged and inter-

[33] *Op. cit.* 161, 2, 5, 6.
[34] See Scott Buchanan's book of this title, 1929.

preted one-half of the Platonic doctrine. Just as for Plato the Idea of Beauty shines through the clearest aperture of sense, illumines the spiritual world as the sun lights the physical world, is fair, comely, and supernally lovely, so Plotinus describes the First Principle as incorporeal light and the object of ecstasy, and Augustine calls God the "beauty of all things beautiful", "the surpassingly comely", and throughout the corpus of the Fathers we read of God's prefulgent clarity, bloom, splendor, and loveliness. So constant are the ascriptions to God of brilliance and radiance that the reader is almost hypnotized into a sense of a gleaming and glowing of the pages of the *Patrologia*, as in this phrase from St. Hildegarde: *luminaria lucide illuminavit*. Plato sets forth this aspect of Perfection with enthusiasm and abundant imagery, and this strain in his writings is the source of that impressive tradition which has treated Spirit as invisible light.

A crowd of witnesses, then, testify after Plato that the Highest Good has aesthetic charm. It shines with light, it functions as an artist's model to our human productivity, and it draws us on by its intrinsic loveliness. Doubtless the effulgence of the Source of Value is not a factor in everyday experience, yet its characteristic quality is given, in proper degree, in any intuitive delight in the harmony of a picture or a song.

But Plato's Supreme Good is as rational as it is charming. Object of mystical adoration, it is equally the embodiment of the Pythagorean number-philosophy. Though his scientific derivation is more obvious in Plato's late phase, measure, order, and proportion characterize the World of Form in his philosophy from the beginning. In all the ethical dialogues the pattern wise man is represented as having his pleasures and pains according to measure or in proper ratio; in the *Protagoras* the art of measurement becomes the instrument of human salvation in lifting us above the realm of appearance; in the *Republic* arithmetic has a position of prime importance in the educational scheme; in the *Timaeus* the exaltation of the "might of geometry" reaches its climax in the reference to God as a celestial gauge; in the *Sophist* and *Statesman* the very existence of the arts is said to depend on a standard of measurement.

The explanation of the identification of the aesthetic and ethical

categories in the *Summum Bonum* is found in their common relation to this cosmic category of measure. When the End of Life is finally analysed into its various constituents, levels, or phases, the chief place is given to Measure, which grounds the excellent both in moral action and in art. This attribute of measure, the source of ratios and harmonies, differentiates itself in common experience according to the matter it impregnates. Plato's most mature view of the relation of goodness and beauty, as principles or forms, appears to be that the "limit", the due, the organized, the symmetrical, is the first cause of the beauty of beautiful things and the goodness of good acts. In the final section of the *Philebus, "locus nobilissimus de boni summi gradibus"*, we read: "First comes measure, and the measured, and the due."[35] "The power of the good has retired into the region of the beautiful, for measure and symmetry are everywhere reckoned as beauty and virtue."[36]

The reference of both the ethical and the aesthetic principles beyond themselves to measure solves, it seems to me, two problems in regard to their interpretation. In the first place, if virtue and charm both depend in the last resort on a single common condition, it is natural that the "Idea" or metaphysical ground of both should be treated as one, though different names might be given it according to the momentary interest in its application. In the second place, the relation of absolute beauty to its manifestation in the particular arts seems to be clarified by considering the function of measure in the aesthetic realm.

How measure defines for Plato the meaning of the good life has recently been elaborately expounded.[37] Respect for proportion in behavior sets limits to the pursuit of pleasure, and enables man to place the object of his appetite within an organic scheme of values. What he wills becomes part of an exercise of reason or judgment; for measure organizes within his dynamic part an economy of ends where each good holds its due position. Aristotle's doctrine of the golden mean is already the essence of Platonic ethics.

The balanced life and the golden mean are the analogue of the fair in nature and in art, for both types of phenomena flow from

[35] *Philebus* 66. [36] *Ibid.* 64.
[37] R. C. Lodge, *Plato's Theory of Ethics*, 1928.

the same primal energy of the due. "The very existence of the arts must be held to depend on the possibility of measuring more or less . . . ; if there are arts, there is a standard of measure, and if there is a standard of measure, there are arts."[38] "The excellence or beauty of every work of art is due to this observance of measure."[39] "Is deformity anything but the want of measure, which is always unsightly?"[40] Thus proper proportion and quantitative correctness mark off for Plato fair from foul. The emphasis on the "possession of arithmetic" by the arts is more emphatic in the late than in the early dialogues, but acknowledgment of the sovereignty of order in beautiful form is present from the beginning. For example, in the *Phaedrus* the art of oratory is distinguished from random speech-making by the clear articulation of the members of the argument. The faculty for the comprehension of scattered particulars in one idea, and for dividing the thought rightly, is a divine gift in a speaker, says Socrates.[41] When Plato explains the distinction between dancing and song as arts from mere vital process, the natural overflow of powerful feeling, he gives the supervenience of order and rhythm as the sign of the arrival of art; for "the gods had pity on us and gave us Apollo and the Muses to be our playfellows and leaders in the dance."[42] Again, the "musician needs dialectic to establish right relations".[43] If you play by ear, or appreciate only general differences of high and low, major and minor, you may have a musical knack, but you are not a musical artist. "But when you have learned what sounds are grave and what acute, and the number and nature of the intervals and their limits, and the systems which have been compounded out of them . . . you are perfect."[44] And in general excess and defect, which are real evils, and are the same as lack of observance of measure, are the ruin of all the arts and their creations from statesmanship to weaving.[45]

The more than finite importance of the concept of measure for Plato appears clearly in the *Timaeus*, where he asserts that music and speech were not given to humanity "with a view to irrational pleasure", but to help them to submit their ways to the laws and

[38] *Statesman* 284.
[39] *Sophist* 228.
[40] *Laws* II 653.
[41] *Philebus* 17.
[42] *Ibid.* 283.
[43] *Phaedrus* 265, 266.
[44] *Sophist* 253.
[45] *Statesman* 284.

harmonies of the universe at large, and to feel the grace in the ordered motions of the stars and planets.[46] It seems fair to argue, then, that Plato did not confuse the moral and aesthetic categories in his determination of the nature of ultimate value, but that if he erred, he did so rather in his exaltation of the notion of lawful relationship and harmonious form above the pure qualities either of the good or of the beautiful as we understand them. For it is self-evident that the idea of order or measure does not belong more with morals than with beauty, nor with beauty than with morals. Moreover, on the side of aesthetics it seems clear from the survey of its history and of contemporary feeling that the definition of beauty as form is not uncongenial to minds concerned to safeguard the inward mark of comeliness. Aristotle states that beauty consists in proper order and size, and in general "among the ancients the fundamental theory of the beautiful was connected with the notions of rhythm, symmetry, harmony of parts; in short with the general formula of unity in variety".[47] For Kant, among the moderns, pure beauty was formal in an exclusive sense. And A. C. Bradley in his famous essay on "Poetry for Poetry's Sake" complains that Schiller's aphorism ("eradicate the matter by means of the form") "meets us everywhere in current criticism of literature and the other arts".[48] Vernon Lee, writing recently for the empathists, identifies aesthetic character with contemplated shape;[49] Croce calls the intuition-expression "form"; and Fry and Bell have turned their phrase "significant form" for excellence in painting into cant.

Plato's metaphysical theory of value makes measure, then, the primary attribute of absolute worth. This view, while not beyond dispute, seems intelligible and defensible. It has always been held and is held today. It furnishes a rationale for the similarity between virtue and beauty and explains the principle of excellence in both to be identical. It excludes the final reference of the morally good to instinct, passion, or biological tendency, as it does the reference of beauty to merely subjective taste or uncriticized personal preference. While the idea of measure operated occasionally in Plato's

[46] *Timaeus* 47.
[47] Bosanquet, *History of Aesthetic* 4.
[48] *Oxford Lectures on Poetry* 7.
[49] *The Beautiful* (1913) 26-28.

mind to the condemnation of artistic forms which we find satisfying, I do not think it is his principle of measure, but rather, his inevitably too narrow application of the principle, that made him reject what we might approve. It was true, for example, in the criticism of painting a few years ago that the baroque, picturesque, and impressionistic manners were thought to be patternless and wholly subjective in their charm; but today we have analysed them as a style and enumerate the elements of their authentic if not classical pattern. Similarly with music. The first conservative and rationalistic recoil from atonal or polytonal music declared absence of form. But the newer interpreters insist that there is simply novelty and greater complexity of pattern, and that "in every conceivable way of writing music, the elementary conditions of order and unity and variety will have to be observed in some fashion".[50]

The final point of the argument has now already by implication been anticipated: that the concept of measure rationalizes the connection between "beauty absolute" and aesthetic excellence in specific examples of beauty in the arts. The effulgence of beauty absolute is due to measure. Measure as principle may become a function in the empirical world and ground the delightfulness of a statue or a poem. There is Form-in-itself for the speculative intelligence, but this intelligible form embodies itself in the shadow-world of sense and then feeds the imagination with satisfaction and appeals to the lover of fine tones and colors as the magic of words or the plastic beauty of a picture.

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[50] M. D. Calvocoressi, *The Principles and Methods of Musical Criticism* (1923) 99.

DISCUSSION

REFLEXIVE RELATIONS: A REJOINDER

IN THE January issue of this *Review,* Professor Hoernlé and Mr. Kattsoff have made some comments on my discussion of Reflexive Relations in the May issue of last year. While I am unable to see that their criticisms invalidate my main contention that reflexive relations do not exist, they do, I believe, raise some issues that may profitably become the starting point for further consideration.

The aim of my paper was, of course, to make a slight contribution to the reform of philosophical vocabulary and grammar. There are, as I suppose every one would admit, certain terms which we use as if they stood for simple facts, when really they are symbols for very complex situations, for which more adequate modes of expression can be found. When such modes of expression are found, the elimination of the original terms becomes possible. In metaphysics, all 'idealists' would admit that such a term is 'matter'. There are similar terms in logic. One of them is reflexive relation, another is identity, a third is difference. Naturally no one can object to the 'vulgar' use of these terms, or even to the technical use, as in symbolic logic, so long as they are recognized as purely symbolic or classificatory devices, with no philosophical significance. One must object, however, to the sort of use that some philosophers make of them, when, without subjecting them to any sort of criticism, they deduce from them consequences of wide scope. I have cited examples of the misuse of identity at the end of my article. A similar misuse of purely symbolic terms in the field of ethics and value-theory, notably by the British school of neo-intuitionists, might be cited. Nevertheless, it is always true, I should hold, that such terms do stand for something, only never for the simple essences they seem to stand for; and to discover exactly what complex situations reflexive relation, identity and difference do stand for, is one of the aims of my paper. Just so, the idealist must find the 'equivalent' of matter. I do not pretend that my analysis is exhaustive, but I think it is on the right lines.

In his discussion, Professor Hoernlé agrees with me that identity, conceived as a reflexive relation, does not exist, but objects that this does not prove that identity itself does not exist. But I cannot see that he offers proof that there is any irreducible relation of this kind; he merely asserts that "Identity stands, provided it be conceived as a triadic or one-many relation". As against this, I think I have shown that wherever we use the term identity, the situation can be adequately described without its use, which would be impossible if identity were an indefinable essence. Professor Hoernlé admits that I have done this, but claims that what I have done has no importance, being only a

matter of "verbal skill" or "cunning". Yet, if he were correct, it would follow, that there is no close relation between language and fact, from which a scepticism regarding knowledge, which I hardly think Professor Hoernlé would embrace, would result. I think we may accept it as a fundamental principle of logical and metaphysical analysis that whenever, in description, a term is dispensable, it is not a philosophical notion, that is to say, would form no part of that final description of the essence of reality which we are all seeking. If, in the language of Professor Hoernlé, "this is a little mad", well, there are two kinds of madness, as Plato said, of which one is philosophy. Μανίας δὲ γε εἴδη δύο, τήν μεν ὑπὸ νοσημάτων ἀνθρωπίνων, τὴν δὲ ὑπὸ θείας ἐξαλλαγῆς τῶν εἰωθότων νομίμων γιγνομένην.[1]

To my analysis of difference, however, Professor Hoernlé seems totally to dissent, although he admits, again, that by the use of the same "verbal cunning" one can eliminate the term from discourse. But I must insist that if you examine any case where you use the term *different*, you will find that the situation can be expressed in a much more precise way without the use of the term. In my article I have shown how in general this can be done. It is possible to classify the cases as follows. By 'A is different from B' I may mean that A has the quality Q and B does not, or I may mean that A has the relation R to X and B does not. Mr. Hoernlé has provided the example here: 'This (A) is a different color from the one (B) I (X) wanted (R)' means precisely 'B is wanted by me and A is not wanted by me', or 'BRX is true, and ARX is false'. A special case of this, which because of its importance deserves to be counted as a third, is the case where A and B denote not things but symbols or descriptions. Then if I say that A is different from B I mean that A means or describes something, and that it is false that B means or describes what A means or describes; in other words, that B does not have the denoting or characterizing relation to what A denotes or characterizes. This last is, I believe, the usual meaning in mathematics when we have an expression of the form $x \neq y$. I judge, however, that Professor Hoernlé would not be satisfied with this enumeration of cases and would claim that there is a special case not covered, where difference means "otherness". Now let us see what exactly otherness can mean. We must eliminate all difference of relation or quality, for otherwise the case would fall under one of those indicated above. Personally I can think of only two meanings of 'A differs from B', when difference is supposed to mean mere otherness. I may simply mean that the thing denoted by A exists and the thing denoted by B exists, and A does not denote what B denotes, and therefore that A and B are two, as was suggested in my article. If A and B are

[1] *Phædrus* 265A.

known by 'acquaintance', this seems especially obvious. Here is A and here is B; what can significantly be added by saying that A is different from B, when, by hypothesis, all difference of quality or relation is eliminated? It may be rejoined, however, that what can significantly be meant is that A and B have 'bare numerical difference'; in the language of McTaggart, that there is no "exclusive description" of either of them. This, of course, is tantamount to denying the principle of the identity of indiscernibles. Whether the principle can be denied without internal contradiction I shall not here debate; but granting for the sake of argument that it can, then, by the 'bare numerical difference of A and B', I mean, precisely stated, A exists and B exists, and it is false that A denotes what B denotes, and every quality and relation possessed by A is possessed by B. Notice that the term difference does not enter into the definition. (Compare the discussion of the definition of identity on page 309 of my article.)

What Professor Hoernlé can mean (page 67) by "One is not Two" I cannot surmise, unless he means that One has some property or relation that B does not have, or that the word *One* does not denote what the word *Two* denotes. Similarly with regard to "True is not False". Otherwise they seem to me to be perfect examples of "silly" or even "mad" propositions, in the bad sense of "mad". Of course we cannot dispense with *not*, in its proper use and signification. But to admit *not* does not entail admitting *different*. We cannot get along in discourse without *not*, but we can, as I hope I have shown, dispense with *different*. As for the term *disjoint*, it is a technical term used in the theory of classes, and can be defined without the use of difference, as follows: A and B are disjoint classes if it is false that there are individuals which belong to A and to B.

And now, after seemingly dissenting from all of Professor Hoernlé's objections, I am ready to make a concession, which I wish I might hope would satisfy him. We have found in the analysis of the terms identity and difference that a certain type of complex situation recurs in each. A characteristic structure is present in each of the two situations. We may therefore call situations of the first type *identity-situations*, and situations of the second type, *difference-situations*. But to be content with the term identity or the term difference is to prefer an unanalysed to an analysed view of things, common sense to philosophy, the name of a structure to the understanding of the structure.

Coming now to Mr. Kattsoff's argument: Mr. Kattsoff seems to be dissatisfied with the definitions of relation offered by Johnson and by Whitehead and Russell, and accepted by me in my article; but unfortunately he does not proffer a better one. He is even inclined to believe that the definitions ought to be amended if it follows, as

I have claimed, that reflexive relations become impossible under them. This would be heroic treatment, but would be justified provided he could show that there are instances of reflexive relations. Before attempting to do this, however, Mr. Kattsoff tries to save the definition of relation given by Whitehead and Russell and at the same time the possibility of reflexive relations, by claiming that in the definition of a relation as a function of two or more variables there is no implication that $x \neq y$. Furthermore, "if the definition is to be perfectly general", he says (page 68), "x and y must be variables, and hence can take on any values whatever, even y equals x or x equals y". Again, "a variable cannot refuse to take on any value arbitrarily". But surely Mr. Kattsoff would admit that variables do refuse to take certain values, and that this refusal is always due to the nature of the function in question. Now it is my contention that, not arbitrarily, but owing to the very nature of the function in question, the variables in the function $x\mathrm{R}y$ do refuse to take on the values $x\mathrm{R}x$. For example, if R is the relation brother of, then $x\mathrm{R}y$ refuses to take the values $x\mathrm{B}x$. My contention is that this sort of thing is always the case. But let us turn to Mr. Kattsoff's examples, which are intended to prove that I am incorrect in my contention.

His first case, where in a mathematical function of two variables, such as $x + y = 4$, $xy = 4$, x is taken as equal to y, has already been disposed of on page 31 of my article, where I point out that $1 + 1$ does not really involve a reflexive relation. $x + x = 4$ means that if we take the logical sum of a class of given cardinal number and of a class which has the cardinal number that the first class has, the cardinal number of the resulting class will be four, provided that the cardinal number of each of the given classes is 2; with a similar interpretation for $xy = 4$. In no numerical proposition where $x + x$ or xx appears is there a relation of a number to itself; there is merely a set of symbols indicating a relation between *several* classes, each of which, if x has a given number, has that number. However, Mr. Kattsoff is apparently not satisfied with the interpretation offered, for at the bottom of page 69 of his discussion he writes: "But cannot we explain $1 + 1 = 2$ in this way also: Given a class of cardinal number 2, then that class can also be denoted as the sum of a class of cardinal one and a class of cardinal one. It is not a relation of two classes, but of two aspects of the same class. $1 + 1$ is one way of denoting the class, 2 is another way. To argue that because I denote the class in two different ways I have two classes is a fallacy of accident." In reply to this I would say that I used the accepted definition of numerical addition. Mr. Kattsoff's definition may be better, but, even if it is, it does not involve a reflexive relation. For in accordance with his own definition, $1 + 1$ denotes the sum of *a* class

of cardinal one *and a* class of cardinal one (italics mine); that is to say, there are still two classes, as in the standard definition; only, instead of being separate classes, they are now *subclasses within a given class*. Nowhere in the definition is there a relation of a thing to itself, but, to quote Mr. Kattsoff himself, "a relation of two aspects of the same class", namely $1 + 1$ and 2; and, I should add, a relation of two subclasses within that class.

Mr. Kattsoff's second argument consists in citing what he regards as an indefeasible case of reflexiveness in relations. An aggregate, he says, is always similar to itself (page 69): "If A is similar to anything, it is certainly similar to itself." This, to be sure, is generally assumed to be true in *Mengenlehre;* but, with all due respect to the men of genius who have created that science, I must insist that it is really nonsense. There is no meaning in saying that a class is similar to itself, for you cannot put the members of a class into one-one relation each with itself. You can construct a similar class, and put the members of one class into a one-one relation to the members of the other; but you cannot put an element of a given class into one-one relation to itself. Of course you can talk about doing it, but you cannot do it, just as you can talk about squaring the circle, but cannot square it. A man can tag himself, but then he establishes a relation between two things, himself and his tag; or, if he points to himself, between his finger and his body as a whole.

Mr. Kattsoff's third argument is drawn from the transitivity of symmetrical relations. We have, seemingly, A similar to B, and B similar to A, and similarity is transitive; hence A similar to A. But take another example: A sister to B, B sister to C, then surely A sister to C; but suppose we have A sister to B, B sister to A, does it follow that A is sister to A? Can a woman be sister to herself? So in the case of similarity, in the sense of the theory of aggregates: A similar to B, B similar to C, therefore A similar to C; but if we have A similar to B, and B similar to A, it does not follow that A is similar to A, for nonsense never follows from sense. In short, Mr. Kattsoff has not established a case of reflexiveness; he has merely called attention to an exception to the general law of the transitivity of symmetrical relations.

Mr. Kattsoff's final argument is as follows. He writes: "Hegel and Wittgenstein notwithstanding, if 'it follows that the concept of a quantity or a number as being equal to itself is an absurdity', we must pity all mathematicians who spend their lives endeavoring to prove a theorem by reducing it to the form $x = x$." But let us see exactly what the procedure is in proofs of this kind. I begin with an expression, $y = z$, which is to be proved. Then I show by one or more steps, the number being irrelevant to our problem, that $y = x$, and

$z = x$, from which it follows, since equality is transitive, that in fact $y = z$; Q.E.D. I never really use $x = x$, I use $\overset{y = z,}{\underset{x}{\diagdown\ \diagup}}$ the familiar triadic, or as we may say, triangular scheme, which, as we have seen, is always at the bottom of an identity-situation. Of course I may set the proof down as follows $\overset{y = z,}{\underset{x = x}{\diagdown\ \diagup}}$ but clearly this is merely a matter of convenience, or convention; and even so, I do not have a reflexive relation of x to itself, for $x = x$ is merely another way of writing x; in other words, there are really two expressions involved, of which the one, $x = x$, means what is meant by the second, x. Once more I have the triadic situation, two expressions and a single meaning. Any concrete case of the proof of a theorem "by reducing it to the form $x = x$" will illustrate this.

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REVIEWS OF BOOKS

Les deux sources de la morale et de la religion. Par HENRI BERGSON. Paris, Félix Alcan, 1932. Pp. 346.

Careful scholarship has been devoted continuously to the fields of ethics and religion, but in more recent years their atmosphere has seemed to take on a kind of sultry heaviness, seldom disturbed by the flash of creative genius. Much was to be hoped from Henri Bergson. Should he speak, it would be neither to repeat nor to codify, but to suggest new and vivid points of insight, attained by a mind of extraordinary powers of originality, and illumined by imagination of rare brilliancy. But many years have passed while Bergson has remained silent upon the fundamental issues of ethics and left unclarified the confused religious implications of his earlier writings. Where the currents of his experience met, the flash of insight, as he thought, illumined, and he saw and spoke, but this was seldom of matters of religion or morals. Now the silence is broken.

One opens this latest book with high expectations. At once one recognises the familiar Bergsonian lucidity and beauty of expression, aptness of illustration, power of imagery. But what are its philosophical teachings? The discussion as a whole is divided into four chapters, one dealing with moral obligation, another with static religion, a third with dynamic religion, and a fourth with mechanism and mysticism. Of these, the second is somewhat the longest, introducing a considerable amount of anthropological material, for which the author seems rather deeply indebted to M. Lévy-Bruhl. Indeed, one cannot suppress some surprise at such concentration on the work of a single student of primitive life, particularly when the point of view of that student is by no means unchallenged. However, this part of the book need not concern us here, for it contributes least of originality to the course of the argument.

Examination of the general discussion reveals two major antitheses as its basis. On the side of ethics the fundamental opposition is between 'closed' and 'open' morality; on the side of religion, between 'static' and 'dynamic' religion. 'Closed' morality and 'static' religion are widely embraced by mankind, but mistakenly so, we are told. 'Open' morality and 'dynamic' religion are found more rarely, but they express genuine insight—the insight of the mystic, for it is through mystic experience that men attain the highest in morals as well as in religion. It is clear that the initial problem before the reader is that of determining what Bergson means by these terms, 'closed', 'open', 'static', 'dynamic', 'mystic'.

'Closed' morality and 'static' religion are closely related, but not identified. Both represent the crystallised, the codified, the immobile,

the institutionalised, the limited. On the other hand, 'open' morality and 'dynamic' religion are fluid, undogmatised, vital, personal, developing. The former come to us by nature and social heritage; the latter are attained through personal mystic experience, somewhat as Socrates was enlightened by the demon (59ff.) and more fully as Jesus and the Christian mystics were enlightened through unity with God (61 and 243 ff.).

'Closed' morality is not personal but relational, Bergson points out. It addresses itself to social relationships viewed abstractly and apart from any specific persons who may stand in such relationships to one another. Its rules are general imperatives prescribed for any and all. Concern is with the regulation of conduct of any father and son, of any husband and wife, of any producer and consumer. Hence its demands are abstract and metallic, heedless of those to whom they apply, but heedful of the relationship alone. Cited as outstanding representatives of this attitude are the professors of the moral philosophy of Kant, who insist upon the moral goodness of acts done against inclination and for the sake of conformity to an order of relations (14, 86). From our infancy a system of habitual reactions is being constructed within us and these are directed by society with a view to furthering the end of social welfare. Some remain merely habitual ways of acting, while others take to themselves the authority and sanctity of moral commandments, as laws proceeding from an impersonal social order. If one conceives of society as a self-sufficient and complete entity, its authority becomes supreme, but if one views it as being composed of individuals of the human species at a specific point in their evolution, it is seen to be a changing, growing thing (102 ff.). Within man's nature is society, and society's command stirs a natural impulse, akin to instinct, to obey. In one sense each moral habit may be thought of as contingent and man as free to choose its expression, yet taken in their entirety it will be found that the habit of contracting moral habits is a force of like intensity with instinct (21). The social group may be large or small, but always its structure is based on the idea of limited existence, hence of hostility to what is external to it. The laws of 'closed' morality arise from the habits of such social groups and express this sense of limitation in prejudices which constitute the seeds of war. Wars for plunder or for glory are the result (54-55, 306 ff.).

'Static' religion, the close ally of 'closed' morality, has made a disheartening spectacle of the history of religion. In its institutionalised forms it has appeared to serve man's survival and happiness by providing fabulations which assisted him in accounting for the otherwise inexplicable in his experience. Further, it has given him the idea that he might possess power over this inexplicable realm

through magic and prayer (179 ff.). In addition, it has comforted him with its stories of immortal life. Thus Bergson would define 'static' religion: It is a natural defensive reaction on the part of the intelligence, set up against that which is depressing to the individual and disintegrative to society (219). For him, it is a means of establishing equilibrium in human thought concerning the world, a simplification of life through the device of meeting troubles with myths (221-222).

In opposition to all this, Bergson advances his mystic doctrine of the 'open' and 'dynamic'. The demon of Socrates is the authentic guide against the traditions of the populace. The glimmering vision of the prophets of Israel disclosed the valid basis of right action, as being unity with the divine spirit. More fully, the insight of Jesus and the Christian mystics expressed the true life of religion. 'Static' religion attaches a man to this world, this life, this society, and cuts short his vision of the real with fantasmal myths (255 ff.). 'Dynamic' religion does not destroy man's ground of confidence. Rather, it provides a basis of greater assurance and satisfaction, but transfigured and of a higher order (226-227).

The crucial question, clearly, concerns the nature of this mystic experience upon which morality and religion are to be based. The object realised in the experience, says Bergson, is God. But Bergson's conception of God has constituted one of the most perplexing problems in the interpretation of his earlier writings. Here we feel confident that the difficulties will be cleared away, for is not this book devoted explicitly to consideration of the sources of religion and morals, and is not the experience of God said to constitute these sources? Surely, then, the conception of God must be made intelligible. But if we cherish such a hope, we are doomed to disappointment. On the basis of Bergson's earlier writings, there seemed to be good reason to regard him as accepting a kind of evolutionary pantheism, with a God who changes and progresses with the evolving universe. "God has nothing of the already made", he told us; "he is unceasing life, action, freedom". In the present work, as in *Creative Evolution*, he argues against the idealistic attempt to assume any complete and ultimate ideal in the universe (as of justice) from which deductions may be made. Typical of his pantheistic tendencies are such passages as the following: Human consciousness is related "to a vaster and higher consciousness. The forces which are at work in all things, we feel also in ourselves". Yet the position is not clear, for in other passages quite as definitely God is portrayed as apart from his creation and as transcending its forms. "I speak of God as the source from which proceed, one after another, as an effect of his liberty, the currents or *élans* of which each constitutes a world; he therefore remains

distinct from these and it is not of him that one can say that 'most often it comes to a stop' or that it is 'at the mercy of materiality which it has taken upon itself'" (*Creative Evolution*). The difficulty is too involved for discussion here, but such passages will recall the perplexity which every reader of Bergson's earlier writings must have felt.[1] In the present work God is defined as *'Creative Love'*, and apparently identified with 'life-energy' or *élan vital*. Moreover, we are told with amazing indefiniteness, that the creative force either comes from or is God: "Cet effort est de Dieu, si ce n'est pas Dieu lui-même" (235). But *which* is precisely the important question. Thus the old indecision remains, being removed neither in the present discussions of the nature of God nor of the problem of evil. For evil is said to arise from the tendency of life to stagnate as matter, in which it is not a manifestation of God. Yet the question how God, as Creator, is related to this tendency in the nature of his creation, is by no means answered.

Bergson turns away from such inquiries to consider instead the nature of the mystic experience as such. Here the central term is emotion. When the divine love in which the mystic must dwell is called emotion, however, nothing sentimental in nature is implied. For the term is not used, as in common parlance, of the infra-intellectual, but of something which includes and transcends intelligence, and as such, is supra-intellectual. So he writes of the mystic's love of all humanity, that at root it is a product neither of instinct nor of idea; it is neither sensible in a strict sense nor rational. Rather, it is itself the root of both sensibility and reason. Thus Beethoven, in the construction of a symphony, might find himself working on the intellectual level in the arrangement, rearrangement, and selection of parts, but the direction and inspiration of the whole must arise from an emotion, inclusive of, but also above, intellect (270-271). It is by sharing this higher emotion of creative love that man becomes united with God, makes the discovery of the secret of his own individuality, and attains the means for the construction of the ideal society.

In regarding the adaptability of the 'open' morality to society generally, it must be remembered that mystic experience, as Bergson admits, is rare in any pure form; usually it is found in some state of dilution. Nor can it be expected that this situation will be immediately or radically altered. Nevertheless, it is Bergson's hope that personal influence and imitation may provide a state of affairs

[1] An excellent statement of the problem, and a brief account of the discussion between Bergson and Father de Tonquédec, were presented by Professor A. O. Lovejoy, in his lectures ("Bergson and Romantic Evolutionism") before the Philosophical Union of the University of California in 1913. *Cf. University of California Chronicle*, XV, No. 4.

in which the lives of men generally will be conducted *as if* they themselves possessed such experience. He points out that the educator may choose between training his pupils in the dictates of impersonal custom or winning their imitation of the more enlightened, in this way bringing about a spiritual union and more or less complete unity (99). One hesitates to deny the efficacy of such imitation as a medium for the spread of modes of behavior. The Christian Church, with its emphasis on the imitation of Jesus, may have suggested the idea to Bergson, and in any case, stands as a stubborn refutation of any such denial. But such imitation in the Church, according to Bergson, has not been productive of dynamic religion, for convention and dogma have brought rigidity. Can a better end be anticipated in the world at large? Is not Bergson depending upon a force which may be very powerful, but which, by its nature, leads to the closed and static life, rather than to the dynamic? The dynamic quality of inner experience is not transferable. It may inspire others to like experience, but its forms of expression become fixed and immobile when taken apart from its vital energy. We may imagine, if we will, a society in which all men felt the surge of creative energy in all of their activities, and lived in the exalted spirit of universal love. Sadly it may be, but of necessity, we acknowledge that the vision is an iridescent dream. Imitation may be one means of moving forward toward it, but imitation will still give us but a static order of conduct.

So one closes the book with the reflection that the difficulties encountered in the author's earlier writings have not been cleared away; that certain of its own most basic conceptions are obscure; that its proffered road to social regeneration is a narrow way which only a few may find. Added to these there remain, needless to say, the fundamental critical questions as to the trustworthiness and significance of mystic experience. When not altogether ignored by our author, these are given but slight treatment of a systematic kind. Yet one cannot feel that the book, taken as a whole, is disappointing, but rather that it is not systematically complete. The strength of its moral earnestness gives to it an extraordinary power. The combined honesty and evaluation of its thought give satisfaction. Above all, the intense vitality of the mind which developed its arguments gives to them a vivid life and, we dare venture, perpetuity.

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Symbolic Logic. By CLARENCE IRVING LEWIS and COOPER HAROLD LANGFORD. New York. The Century Company, 1932. Pp. xii, 506.

To the English-reading student of logic who wished to pursue his studies beyond the traditional moulds of the Aristotelian logic, the standard reference book, until it went out of print, was Professor C. I.

Lewis' *Survey of Symbolic Logic* (University of California Press, 1918). With its remarkably fine historical study of the founders of mathematical logic, its expert analysis of the nature of the logistic method, its well-directed criticisms of characteristic weaknesses of *Principia Mathematica*, and its presentation of a new logical calculus—the system of strict implication, which is designed to analyse important but neglected logical concepts such as possibility, consistency, and necessity—this work filled a unique place in the literature of logic. Containing all the salient features of the *Survey*, with one exception, and with a much improved analysis and development of the system of strict implication, the work under review will largely supplant its predecessor. The exception is the historical introduction, which has been condensed and simplified so as to be palatable to the beginning student. The student who wishes a full discussion of the history of modern mathematical logic will still need to consult the older work.

Chapters I–VIII and Appendix II have been written by Professor Lewis; Chapters IX–XIII and Appendix I, by Professor Langford. Deserving especial notice are: (a) Chapter VII, on "Truth-Value Systems", which contains an exposition of the interesting work of the Polish logician, Łukasiewicz and his school; (b) Chapter VIII, on "Implication and Deducibility", in which the author defends his claim that strict implication is the only implication-relation that is adequate as a foundation for valid inference; (c) Chapters X and XI, in which Professor Langford, formerly a student of Professor H. M. Sheffer of Harvard (and noticeably influenced by him), grapples with the difficult problems of consistency, completeness, and independence of postulates, the range of significance of variables, and the theory of types; and (d) Appendix II, which analyses in detail, and shows the interrelations of, the different varieties of the system of strict implication, and contrasts them with the system of material implication.

In view of the fact that the authors have devoted considerable effort to elucidating the structure of the system of strict implication and comparing it with that of *Principia Mathematica*,[1] and inasmuch as this question has aroused widespread interest,[2] it deserves special consideration in this review.

In a recent article in *The Monist*[3] Professor Lewis points out that "the base-concepts, or 'truth-values' of one system cannot (generally) be 'translated in terms of' those of another". Since this cannot generally be done, it should be significant if it proved possible in the case of the two systems best known to logicians, that embodied in P M, Part I, Section A, and the system of strict implication.

[1] *Principia Mathematica*. By Whitehead and Russell. 2nd Edition, Cambridge, 1925. It will hereafter be abbreviation P M to save space.

[2] *Cf.* Leo Abraham, "Implication, Modality, and Intension in Symbolic Logic", *The Monist*, XLIII, 119–153; Frederic B. Fitch, *ibid.* XLIII, 297–298.

[3] XLIII, 295–296.

The distinctive idea of the system of strict implication is that of *possibility*. If *possibility* can be defined by using only ideas of P M, then all ideas in Professor Lewis's system can be so defined. We offer the following definition:

(a) $\Diamond\, p \overset{df}{=} \sim(\exists q)\colon\ p = q \sim q$

i.e., "p is possible" means the same as "it is false that there exists a proposition q such that p is identical with the logical product of q and not-q". Or, in other words, "p is possible" means that p is not *identical* with any contradiction. The symbol " $=$ ", standing for *identity*, should not be confused with the " $\equiv$ " of P M (material equivalence) or with the " $=$ " of the system of strict implication (strict equivalence). Thus, *possibility*, a primitive idea in the system of strict implication, is defined by means of four primitive ideas in P M, *viz.*, (1) *negation*, (2) *disjunction*, (since *conjunction* is defined in P M by *negation* and *disjunction*), (3) ($\exists q$), which is introduced as a primitive idea in P M, Section B, $*9$, and (4) " $=$ " (*identity*).[4]

The definitions of other ideas in the system of strict implication follow immediately from definition (a):

(b) p is impossible: $\sim \Diamond\, p \overset{df}{=} (\exists q)\colon\ p = q \cdot \sim q$

(c) p is necessary: $\sim \Diamond \sim p \overset{df}{=} (\exists q)\colon\ p = q \vee \sim q$

(d) p is possibly false: $\Diamond \sim p \overset{df}{=} \sim(\exists q)\colon\ p = q \vee \sim q$

(e) p is consistent with q: $p \circ q \overset{df}{=} \sim(\exists r)\colon pq = r \cdot \sim r$

We can now construct the definition of *strict implication* in terms of *material implication*. Since "p strictly implies q" means that "it is impossible for p to be true and q to be false",

i.e., $p < q \overset{df}{=} \sim \Diamond\, p \sim q$

the definition of strict implication, obtained by substituting $(p \sim q)$ for p, and r for q in definition (b), is as follows:

(g) $p < q \overset{df}{=} (\exists r)\colon p \sim q = r \sim r$

Now, if we replace *conjunction* and *negation* by *material implication*, we shall obtain the following interesting definition of strict implication in terms of material implication:

(g′) $p < q \overset{df}{=} (\exists r)\colon p \supset q \cdot = \cdot r \supset r$

i.e., "p strictly implies q" means the same as "(p materially implies q) is identical with a tautology".[5]

[4] For the definition of *identity* see P M, $*13$.

[5] This is not the most general definition of strict implication that could be given, nor are the other definitions completely general; but we have preferred them for their simplicity. For complete generality, definition (a) should read:

(a′) p is possible: $\Diamond\, p \overset{df}{=} \sim(\exists qr)\colon\ p = q \sim qr$

By employing the above definitions, every proposition in the system of strict implication can be expressed in terms of the fundamental ideas of P M. The propositions so expressed would be deducible in P M if the set of primitive propositions in P M were complete; but they are not.

In the chapter on "Implication and Deducibility", Professor Lewis wants to show that whenever p strictly implies q, q is deducible from p. He does this by demonstrating that the so-called paradoxes of strict implication really state facts about deducibility. He shows, for example (p. 250), that from an impossible proposition any proposition whatsoever can be deduced. In the course of his deduction of q (any proposition) from $p \sim p$ (an impossible proposition), Professor Lewis assumes that $p \vee q$ can be deduced from p. Now, in order to deduce a given proposition, say $p \vee q$, from another proposition, say p, it must first be shown that "p implies $p \vee q$". The inference in question is, then, justified on the ground that "p strictly implies $p \vee q$". So that Professor Lewis is assuming that strict implication is a sufficient condition for deducibility, which is precisely what he is trying to prove. The only thing that is demonstrated is that *in the system of strict implication* any proposition can be deduced from an impossible proposition. Laws of deducibility presuppose laws of implication; laws of implication are determined by a definition of implication in a particular system; hence "paradoxes" of implication cannot be justified by an appeal to their deducibility. However, the impossibility of *showing* that strict implication coincides in its properties with *general* deducibility (distinguished from *logistic* deducibility)[6] is not in itself a reason for believing that it does not so coincide. Our reason for rejecting the identification of "p strictly implies q" and "q is deducible from p" is that we deny that "$p \vee q$" can validly be *deduced* from p; or, more fundamentally, we deny that "if p is a proposition, and q is a proposition, then '$p \vee q$' is a proposition". Such a proposition can

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The reason that this definition is preferable to definition (a) is that there are contradictions that are not *identical* with $(q \sim q)$; but all such contradictions will be identical with $(q \sim qr)$. We know no way of demonstrating that $(q \sim qr)$ is identical with $(p \sim p)$, although, of course, they are *equivalent* (both materially and strictly). The other definitions, deducible from (a′) follow:

(b′)	p is impossible:	$\sim \Diamond\, p \overset{df}{=} (\exists qr)$:	$p = q \sim qr$
(c′)	p is necessary:	$\sim \Diamond \sim p \overset{df}{=} (\exists qr)$:	$p = (\sim q \vee \sim r) \vee q$
(d′)	p is possibly false:	$\Diamond \sim p \overset{df}{=} \sim(\exists qr)$:	$p = (\sim q \vee \sim r) \vee q$
(e′)	p is consistent with q:	$p \circ q \overset{df}{=} \sim(\exists rs)$:	$pq = r \sim rs$

Definition (g′), the definition of strict implication, now becomes:

(g″) $\quad p < q \overset{df}{=} (\exists rs)$: $p \supset q = rs \supset r$

[6] *Cf. Symbolic Logic* 253–255.

rightly belong only to an extensional logic, like that of material implication.

It should be emphasized that nothing we have said is meant to impugn the system of strict implication as a consistent mathematical structure. What we take issue with is expressed by Professor Lewis as follows: "In the light of all these facts, it appears that the relation of strict implication expresses precisely that relation which holds when valid deduction is possible, and fails to hold when valid deduction is not possible. In that sense, the system of Strict Implication may be said to provide that canon and critique of deductive inference which is the desideratum of logical investigation." Strict implication does not define that precise relation which subsists between the postulates and theorems in a deductive system; for the sense in which the conclusion of a valid syllogism is *implied* by its premises is not the sense in which that conclusion is *implied* by any impossible proposition. Strict implication is not strict enough.

Our selection of some of the most controversial issues for discussion in this review has made it impossible to do justice to the authors' treatment of a host of important logical problems. The chapters written by Professor Lewis—in which the reader will find an authoritative account of such subjects as extension and intension of terms and propositions, existence principles, circularity in logic, the nature of deductive systems, implication and deducibility—are distinguished by the constructive originality and clarity for which Professor Lewis is noted. Professor Langford's pioneering analyses into the nature of postulational technique and the logical paradoxes deserve the attention of all serious students of logic.

One final point: On page 134, second line from the bottom, the interpretation of proposition

12.89 $\sim p < \sim(\sim p < p)$

reads as follows: "A false proposition never implies its own denial". This is an error. The text should read: "If a proposition is false, then it is not implied by its own denial". Of course, false propositions do imply their own denial, whenever they are impossible.

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Ethics. By Nicolai Hartmann. Authorized translation by Stanton Coit. 3 Volumes. New York, The Macmillan Company, 1932. Pp. 344; 476; 288.

In ethics there are logic-choppers, like C. D. Broad, who watch the chips fall where they may; and there are masters of aspirational words, like T. H. Green, to whom what they mean is that they mean

something of the greatest importance. But there also appears now and then in ethical theory one of the royal breed, like Nicolai Hartmann, who chops logic for the sake of the moral log rather than for the whirr of the dialectical chips. Hartmann belongs to the tradition that is greater than the now much-publicized "Great Tradition", in that he disdains to follow anything save the argument itself, matching his great knowledge of the argument with candid acknowledgment of the limitations imposed upon intellectual curiosity by cosmic recalcitrance and human ignorance. Rising in continuous overtones from specialized pride to artistic genius, he spreads over insight and frustration alike what he well calls the primal passion of philosophy—"the Socratic pathos of wonder".

Though Hartmann represents in the moral field the sort of thing that G. E. Moore has celebrated in English philosophy (himself building upon Husserl and Scheler), he, distinctly unlike Moore, insinuates through his practice of dialectics an overmastering sense of values over and beyond merely those clustering around intellectual honesty and rational efficiency.[1] W. D. Ross's *The Right and the Good* is the only contemporary ethical writing in English which comes to mind as deserving comparison (and it at a disadvantage) with Hartmann in richness of value-appreciation as a by-product of analysis and criticism. From another point of view, however, Sidgwick's *Methods of Ethics* inevitably suggests itself for comparison. But Sidgwick sought to do only for Christendom, in imitation of Aristotle's rationalization of Grecian culture, what Hartmann has undertaken through a boldly independent evaluation of both the Grecian and Christian ethos to do for the human spirit as creative of any and every culture. Moreover, Sidgwick stood if not frustrated at least stopped (at the threshold of theology) before the final antimony resulting from his own honesty. Hartmann himself is not unaware of the antinomy between religion and ethics; indeed he detects here as elsewhere many antinomies growing where none or few have been seen to grow before. But he comes emotionally to terms with the impasse, on the side of ethics. Moral speculation has a chance through Hartmann to become much freer than before of theological irrelevancies and indeed of all theological entanglements.

For what stands out from the three volumes as Hartmann's greatest single contribution is his emancipation of ethical thought from every species of spiritualistic determinism, without sacrificing axiological versatility. As Kant freed man from the causal nexus, so Hartmann aims at man's "deliverance from the nightmare of teleo-

[1] How far this differential sensitivity is traceable to Hartmann's acceptance of the notion of "emotional apprehension" I do not know. But he has implemented Meinong's conviction of the epistemological efficacy of emotion so as to re-orient—for better or worse—all intuitive ethics.

logy". Hartmann himself connects his anti-teleology with his defence of the traditional doctrine of the freedom of the will, ability to have chosen otherwise; but even if he has done no more in his one-volume defence of freedom than raise that issue again to the eminence of respectable debate, he is the carrier of real progress in his terrific onslaught upon cosmic purpose. Kant had been right in freeing man from the causal order without disturbing that order itself, but wrong in giving man no axiological norms other than a law of his own making. Following Plato in order to defend axiological heteronomy against Kant's moral autonomy, Hartmann must also defend man against invasion from the axiological world as Kant defended him from violation by the natural order. The greatest of all obstacles arises as the "antinomy of the two autonomies"; and freedom of the will is Hartmann's answer to the incidence of values, that ought-to-be, upon personality, that ought-to-actualize them, and can do so if it elects.

Of this central, metaphysical freedom there is acknowledged to be no two-plus-two-make-four proof; but it is ably argued that moral preferences presuppose it, and the phenomena of accountability and especially the sense of guilt are skillfully used to make the consciousness of freedom appear more probably actual freedom of consciousness than illusion. Referring the interested reader to Henry Lanz's admirable comments on the 1926 initial German edition from which this translation is made (THE PHILOSOPHICAL REVIEW XXXVII (1928) 276-278), I have space for only one other detail, the categorial law, whereby Hartmann appropriates the fruits of "emergent" evolution without being caught in teleological entanglements. The law runs that the higher the category, the weaker its strength; and the lower, the greater its strength.

Hartmann has, I believe, for the first time revealed something like the full strength of the realistic position in the ethical field, raising ethical realism into one of the permanent possibilities of explaining the presupposition of moral preference. The major significance of Hartmann would be far from dissipated even if his implementation of the Ought, through its own nisus and the force borrowed from free personality as its carrier, were disallowed; for he facilitates the desire to gaze into his renowned "valuation space" and to see at least the middle portion of a scale of values, which in spite of antinomies and complexities is superbly rewarding whether ever actualized or not. To fight the battle of the antinomies with Hartmann may well prove more rewarding for ethical students than to master the arid abstractions or the blighting dogmatism differentially frequent in the field of moral speculation. If intellectual audacity, if deep sensitization to the values of both personalities and institutions, if simple magnanimity

—if these count in morals, then Hartmann has written not only the most pretentious ethics of the West but also one of the very greatest.

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The Philosophy of Descartes. By A. BOYCE GIBSON. London, Methuen and Company, 1932. Pp. xvi, 382.

"The object of this book is to present an account of the philosophy of Descartes, in itself and for itself" (vii). In accordance with this plan Professor Boyce Gibson has reduced to a minimum his description of the historical antecedents of the system, including only so much as he considers indispensable for an understanding of the problems as they presented themselves to Descartes. More especially, he has avoided "reading history backward", that is, emphasizing those aspects of his subject which anticipated important issues in the future. He has therefore quite frankly sacrificed historical continuity to the representation of Descartes's philosophy in the proportions and with the emphasis which seemed proper to its author. It is by no means the case, however, that he has given an easy systematization of Descartes. On the contrary he has presented very amply the confusions and uncertainties that troubled the philosopher and, by setting side by side passages with different implications, he has shown that the system was in a state of unstable equilibrium. By following this plan Professor Boyce Gibson has produced a book quite different from any of the others on Descartes, at least in English, and one of very great value to those who require an accurate understanding of him.

In accordance with the plan, historical considerations are compressed, so far as possible, into an opening chapter. After a chapter devoted to the purpose which actuated Descartes, the author takes up the chief elements of the system, following as closely as may be the logical order in which Descartes conceived them to develop: the immediate certainty of consciousness, the proofs for the existence of God, the nature and objects of scientific knowledge. The development of these subjects brings to light special problems such as the rôle of perception in knowledge and the relation of the theory of perception to the two substances, the attributes of God, and the very difficult problem involved in the apparent circularity of Descartes' effort to vindicate the validity of knowledge. The book closes with a chapter on Descartes' ethical theory, which Professor Boyce Gibson tries to rescue from the rather perfunctory treatment usually given it.

It is probably inherent in the plan of the book—and it is avowedly the author's purpose—that religious questions should bulk much larger, in comparison with scientific questions, than they do in most accounts of the Cartesian system. Professor Boyce Gibson is convinced that Descartes' mission, as he himself conceived it, looked to the crea-

tion of a philosophy in which the antipathy between the new science and the doctrines of the Church should be overcome (27). Accordingly he emphasizes the fact that Descartes believed himself in all sincerity to have been divinely inspired in his dreams to undertake a task which was as much a work of religious enthusiasm as of intellectual enlightenment. He might easily have shown by other examples that, in the sixteenth and seventeenth centuries, this was an experience by no means so unusual or so bizarre as we are likely to think today. This, of course, has the closest bearing upon the not infrequent charges of excessive caution, or even downright insincerity, in Descartes' remarks upon religious doctrine, and also upon the relation between his metaphysics and his physics, which has usually been regarded as more perfunctory than he cared to admit. These problems are treated with great care and precision in the chapter on Descartes' purpose.

Is should probably be conceded that Professor Boyce Gibson has made a good case so far as Descartes' intentions were concerned. Obviously it does not follow that Descartes had a correct understanding of what was really important in his philosophy; indeed, one result of the book is to produce the impression that Descartes was worried by a variety of theological difficulties that are best solved by forgetting them. In respect to his whole system it might be argued with a good deal of plausibility that his great success was tactical, a view which he himself could never have taken. His radical distinction of soul and body, as Professor Boyce Gibson remarks, served admirably to prevent theology and physics "from interfering in each other's affairs" (240). Whatever metaphysical difficulties it involved, it served to produce a *modus vivendi* which left a deep and a lasting impression upon the course of modern thought. It not only gave mathematical physics a chance for freedom but also opened the way to the separate treatment of mind by the English psychologists and suggested the branching of the disciplines in the mental and the physical sciences which has not yet wholly vanished. The mind-body dualism was a working hypothesis of the greatest utility and effect, even if it was a mere evasion, as the author says (284). Descartes must have been a perfect example of the irony in human history which Hegel loved; he builded better (or worse) than he knew.

Professor Boyce Gibson's conclusion is not really different from this except that he comes to it from the opposite side. Taking the system as Descartes himself meant it, he finds a number of important respects in which its conclusions are untenable and points out the need for changes which would certainly go pretty far beyond what Descartes had in mind. Thus, on the side of method, he stresses the impossibility of treating science and metaphysics as if they followed identical pro-

cedures and had the same degree and kind of certainty. On the side of metaphysics, he stresses the impossibility of conceiving the self and God as distinct entities. In fact, Descartes is left rather more enigmatic than we had realized; his religious motivation requires so much revision in his system that we do not understand quite why he left it as he did.

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The Philosophy of the Present. By GEORGE HERBERT MEAD. Edited by ARTHUR E. MURPHY. With prefatory remarks by JOHN DEWEY. Lectures upon the Paul Carus Foundation. Third Series. Chicago, The Open Court Publishing Co., 1932. Pp. xl, 200.

This is an important work. The author of it resolutely undertook the solution of a problem which his school of philosophy has been accused of discussing superficially or evasively. Probably few readers will regard Mr. Mead's elucidation as entirely satisfactory, for the manuscript material covering the third series of the Carus Lectures, on which the book is based, consists, in John Dewey's prefatory words, of "hardly more than hurriedly prepared notes of extreme condensation", ably edited for publication by Arthur E. Murphy. Consequently much is left to the reader's surmise; much must be read between the lines. And even had Mr. Mead not been prevented from carrying out his intention of expanding the discourse to three or four times its present length, had he been able to put parts of it into less *ex cathedra* and less oracular form, the book would still have been found unacceptable to many persons, because of the very novelty, if not because of the character, of the doctrine supported therein. Nevertheless, the presentation of Instrumentalism must hereafter be acknowledged to include a forthright, able, suggestive discussion of that elusive phase of reality, the past, which seems so obviously implicated in every man's experience and so perfectly elusive when the attempt is made to capture it in the web of philosophic theory.

As Mr. Murphy warns the reader, the term 'present' in the title does not denote the contemporary situation in philosophy, but rather the status of any object when it occurs and while it is occurring. "Reality", according to Mr. Mead, "exists in a present" or "is always in a present". A present of course always implies a past and a future and these, according to the general opinion, are denied existence even while they are admitted to be causally effective. This is the singular situation which challenged Mr. Mead's critical and creative powers. Mr. Whitehead's suggestion of one vast specious present which could take in the whole temporal reality seemed to Mr. Mead to do away with a genuine past, present, future, and hence with existence itself. The experienced facts appeared to him to call for a profoundly

different conception. The picture of these facts which one gets from Mr. Mead's description is of presents ever sliding into each other (independent presents, I am tempted to say), each present developing a past peculiar to itself and a future peculiar to the present and its peculiar past. Only a past which has its origin in a present can have meaning and interpretative value for that present, and only a present which has given birth to its own past is one which can properly serve to determine its future. In other words, the past is instrumental; it is always such as the present calls to its aid to further a selected future.

If Mr. Mead contends that the past refers "to that conditioning phase of the passing present which enables us to determine conduct with reference to the future which is also arising in the present", he does not hint that time is, as it seems to me, an illusion induced by the orientation of life about timepieces and calendars. Time remains real, though in senses seemingly varying from that of a substantial stream in which objects float to that of the reals of the poetic imagination. The foundation fact of Mr. Mead's outlook is emergence, which is responsible for the distinguishableness of events, and which in turn is responsible for the emergence of time. From this we learn that not only all experience, but any natural occurrence, indeed the character of the universe, is social. In other words, everything shows itself to be several things at once. Emergence implies perspectives, and the world or any part of it illustrates numbers of perspectives organized or socialized as the present is socialized by including a past and a future.

A review limited in accordance with editorial specification must sometimes end without arriving at a proper summary of the book's doctrine and without having touched upon the speculative and critical clues which took shape in the course of the reading. This is emphatically true in the present instance. Such an outcome is perhaps not altogether to be regretted. A novel theory should, in Mr. Murphy's words, "speak first of all in its own person".

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The Theory of Knowledge and Existence. By W. T. Stace. New York, The Oxford University Press, 1932. Pp. xii, 456.

The author, maintaining that *esse* is *percipi* and that the mind is originally in a state of solipsism, addresses himself to two problems; first, "How can the solitary mind, shut up within its world of private phantasms, come to a knowledge of the solid permanent external world? How can it logically pass to that end?" (96). Second, assuming that "there is no evidence whatever to convince the solitary mind of the existence of the public world", what is the epistemological status of external objects? "We shall conclude", he says, "that the belief

[in the external world] is a construction of the mind itself and our main business will be to exhibit the logical order of the steps of this construction", which, he adds, "must actually have taken place in history, and indeed must take place anew in each individual mind" (96).

The mind in its original state of solipsism, he argues, can attain only to 'concepts of the given' and to the distinction between the 'I' and the 'not-I'. It reaches such concepts as 'red'; 'colour', and the like by noting the resemblances between its perceptions. It reaches the distinction between the 'I' and the 'not-I' by noting the differences between its pure passivity in perception and its activity in volition. All further developments depend upon the phenomena of communication with other minds (100). This being established, the mind embarks upon a series of 'constructions'. It is under no compulsion to do this, or to make one construction rather than another; those which he enumerates are those which we, on this planet, happen in fact to have made. The first of these constructions is, "That the presentations of one mind bear to the corresponding presentations of other minds the relation of resemblance". In the second the mind identifies the resembling presentations, thus postulating one universe instead of many. From these it proceeds through four more constructions to the concept of objects which may exist when no mind is perceiving them, and to things, which are not identical with any presentation. These constructions fall into two groups, those which merely unify and those which postulate existence. The existences which are thus postulated have a radically different epistemological status from 'factual existences'. The latter consist exclusively of minds and their perceptions, which are, he says, 'the sole ultimate constituents of the universe'. The former, 'constructive existences', involve the notion of 'unperceived perceptions' and this contradiction cannot be resolved unless we recognize that such an existence is only 'a supposal, a make-believe, a pretense' which is incapable of factual existence. Most existences belong to this class. Constructions are said to be true when they do not conflict with the given, are consistent and are 'needed for the purposes of knowledge'. The theory is developed in its application to all the major fields of knowledge.

The author experiences some difficulty in accounting for our knowledge of other minds. Although he says that we 'discover' other minds and that 'other minds are *found* existing' (169), he rejects the theory that we know them directly, 'preferring' the theory of inference from analogy translated into terms of 'groups of perceptions'. On this basis he reaches the following conclusion, "Whatever be the degree of *probability* which attaches to the reasoning by which we *justify our belief in the existence of other minds* [italics mine] it is at any rate a genuine

inference" (197). He undertook, however, to show how the mind passes out of a state of solipsism to "a knowledge . . . of other minds" (171). Not only this, his theory is based upon what he takes to be certain knowledge of the fact of communication (100). The account he gives of how the mind made the inference from mere 'groups of presentations' to the existence of other minds meets with obvious difficulties, as does his general assumption that knowledge of other minds actually precedes knowledge of things. Offered as an interpretation of the behavior of infants it is even fantastic.

The book as a whole, however, is interesting both for the ingenuity the author exhibits and for his vivid portrayal of the contrast between our beliefs and the perceptual data which are assumed to verify them.

S. KERBY-MILLER

THE UNIVERSITY OF MISSOURI

Religious Realism. By A. K. ROGERS, J. B. PRATT, J. S. BIXLER, A. G. WIDGERY, H. HARTSHORNE, H. N. WIEMAN, G. A. COE, R. L. CALHOUN, E. W. LYMAN, W. M. HORTON, D. C. MACINTOSH, H. R. NIEBUHR, W. K. WRIGHT, J. E. BOODIN, W. P. MONTAGUE. Edited by D. C. MACINTOSH. New York, The Macmillan Co., 1931. Pp. viii, 502.

In the first essay of this volume, "Is Religion Important?" Mr. A. K. Rogers attacks the central contention of Lippman's *A Preface to Morals, viz.*, that modern science, by proving that belief in a friendly universe capable of insuring man against loss to his highest interests is altogether untenable, has ruled religion entirely out of court and rendered it unimportant for modern man. He takes pains to distinguish clearly the different meanings which may be given to this claim, subjects each to critical examination and finds it unconvincing. His analysis is keen, he cautiously avoids over-statement, and is successful, it seems, in clearing the way for religious faith. Professor Pratt's essay on "The Implications of Human Consciousness" is a spirited polemic against naturalistic monism in epistemology and psychology and in support of dualism and interactionism as applied to the mind-body relation. It is effective rather through skillful marshalling of familiar facts than from any fresh insight. Professor Bixler's "A Phenomenological Approach to Religious Realism" is a detailed and valuable historical study of the recent development of the phenomenological theory in German philosophy and theology with particular attention to the thought of Scheler. According to Professor Widgery, who writes on "Religious Realism and the Empirical Facts of Religion", religion obtains the philosophic support it requires if one understands the world of human experience as an aggregate of immediacies of external fact and of idea, feeling, and action, and denies all constitutive relation between these miscel-

laneous items. The achievements of modern mathematical physics would appear a sufficient refutation of such rampant realism. Professor Hartshorne in "An Empirical Approach to a Theory of Character" considers the development of religion and of theistic faith in connection with the facts of biological and social evolution. Through experiences of sharing and mutuality there emerges a higher self which embodies one's own and the common will, and through which God may be revealing himself to us and at the same time may be growing, through interaction with human selves. In a compact essay, on "God as Value", Professor Wieman supplies a thoughtful defense of the view that God is the structure of supreme value viewed as a possibility of existence, and also of that kind of process in nature which most nearly approximates this order of supreme value and promotes further approximation to it. Realism in religion according to Professor Coe carries with it "A Realistic View of Death". A dispassionate appraisal of death, he holds, shows that when it comes as the termination of old age it is not mere frustration but fraught with positive value and when in youth or at the high tide of maturity and power it can be converted into a means of good by the agent who unflinchingly faces the situation and realizes his capacity as an ethical creator. In an article "Plato as Religious Realist" which deserves fuller treatment than the limits of this review or my own competence permits, Professor Calhoun essays to prove that Plato was a religious realist in a complex but definite sense: as one who subjects religious beliefs to critical scrutiny, searching and persistent; as one who treats beauty, truth, and the like as established in the permanent order of things and worthy of unconditional devotion; as one who is convinced that over against the minds of all men is another, one or many, of such nature that it may suitably be called the Divine, or God. Professor Lyman defends the view that religious experience is an independent source of knowledge by arguing that when we recognize perceptive and synthetic intuitions as cognitive we can regard value-experience as a discovery of reality. Professor Horton contributes a chapter on "Authority without Infallibility".

The view on which all the contributors to this volume agree, and which they are prepared to defend, is that which gives title to the book. Religious realism, we are told in the preface, is the view that a religious Object, appropriately called God, exists independently of our consciousness thereof, yet is so related to us that, without dependence on the arguments of epistemological idealism, it is possible to gain either a verified knowledge or a practically valuable and theoretically permissible faith, not only that such religious Object exists, but also within limits as to what its nature is. Professor Niebuhr in Chapter XII supplies historic setting by connecting the realism dominant in the theology and religious philosophy of Germany and America today with

the revolutionary change from the anthropocentric and anthropocratic view of 19th century philosophy and science to the critical, realistic temper of 20th century philosophic and scientific thought. Of recent movements in German theology I have no knowledge, but with regard to the validity of this thesis, so far as the development of religious philosophy during the past century is concerned, two things occur to me: (1) it would be indeed strange to label the religious philosophy of the British and American Neo-Hegelian movement in the late 19th century as anthropocentric and anthropocratic in contrast with the varieties of pragmatism and personalism which followed in the early 20th century, and (2) the impression is left by Professor Niebuhr's own account that realism in recent German 'theology of crisis' does not so much mark an advance in philosophical insight as a return to the old orthodoxy in time of political and economic stress.

The detailed defense on philosophic grounds of realism in religion is undertaken by Professor Macintosh in the longest and most elaborately argued essay in the book. He proposes a definition of religion both realistic and pragmatic, as essentially a conscious relation not merely of dependence on a higher power but more especially of active adjustment to the higher reality or power upon which man's highest values are believed to depend. In order to establish the possibility of knowledge of such an independently existing divine reality, he formulates (as the outcome of a critical examination of the principal epistemological theories) his own theory of 'critical monistic realism', according to which there is a partial (sufficient to make human knowledge of independent reality not only possible but actual) coincidence between the directly experienced and the independently real. What criterion have we for the divine, whether as experienced or as real? Religion has two roots, the numinous consciousness of a mysterious reality and the appreciation of the higher, personal values. Neither is the criterion we seek; this is found where the two overlap, where in spiritual religious experience we adjust ourselves in a certain way to the mysterious and numinous reality for the sake of promoting the production of spiritual values, and we find that a difference is made for the better in relation to those values.

The essay of Professor Macintosh as well as Professor W. K. Wright's vigorous and interesting defense of theistic belief in "God and Emergent Evolution" show how much in the way of rational support contemporary religious philosophy has lost in following the pendulum-swing away from absolute, even from objective, idealism. The appeal of both of these writers is to the existence and importance of values in the real world, with the one the spiritual values realized in personal life, with the other the values of life and mind realized in emergent evolution. But the ends which determine the values of organic

evolution and social progress viewed merely as courses of events in the natural world are those of biological survival and social utility. The values themselves are limited in scope to the processes in which they arise and have no direct bearing upon the nature of the universal reality as such. The outstanding feature of the objective, the absolute, values which historic idealism has stressed, on the other hand, the values of Truth, Beauty, Power, Goodness, is that they do have universal reference, they appeal to personal intelligence and will precisely because they are possibilities of universal organization and community. They are, furthermore, possibilities which, *qua* possibilities, presuppose, and in the degree of their realization confirm, the existence of organizing relations among all objects of the real universe, *viz.*, coherence of intrinsic character and meaning, co-operative efficacy, patterned harmony and significance. These relations in virtue of which the existing world is intelligible, is adaptable to rational uses, and is aesthetically significant, are as real as any fact of existence and require to be explained. In their need of explanation they serve as grounds for the theistic postulate. Now surely one need not be an absolute idealist, in the sense now reprobated and abhorred of denying all reality to the process of temporal evolution and all efficacy to individual invention and experiment, in order to recognize these facts and to take account of them in his philosophy of religion. Space does not permit discussion of Professor Boodin's persuasive essay on "God and the Cosmos" or Professor Montague's original speculations concerning "The Trinity".

H. W. WRIGHT

UNIVERSITY OF MANITOBA

DESCRIPTIVE NOTICES

Empirische Soziologie. Von Otto Neurath. Wien, Julius Springer, 1931. Pp. 152.

This is the first treatise on the social sciences to be written from the point of view of logical positivism. Its strong points are to be found in the critical analyses of contemporary sociological theories which operate with undefined terms like "spirit", "intent", and "meaning whole." Its weak points flow from its failure to do justice to the specific and differentiating character of *social* action and its tendency to seek for explanation only in terms of the spatial-temporal structures of "physicalism"—the monistic methodolgy of logical positivism which cries out against metaphysics only to fall into all the metaphysical difficulties of nominalism. Neurath claims that the closest approximation to "physicalism" in the social sciences is to be found in Marxism. But his completely descriptive approach makes it impossible for him to understand, or even express, the dynamic and normative aspects of the Marxian philosophy. He is therefore constrained to interpret Marxism as a kind of social ultra-objectivism. Unfortunately both Marx and Lenin maintained that the fetish of the fact inevitably leads to social apologetics wherever conflicting class interests are involved.

Sidney Hook

Washington Square College
New York University

The Modern Theme. By José Ortega y Gasset. Translated from the Spanish by James Cleugh. New York, W. W. Norton and Company, 1933. Pp. 152.

This volume contains the essay from which it takes its title—an enlargement of a lecture at the University of Madrid in 1921—and three supplementary essays. Like the author's *Revolt of the Masses,* it is predicated upon a revolutionary change in the state of modern culture, evidenced especially by the failure of formerly recognized values to commend themselves to the rising generation. The change is interpreted as an effort to grasp a philosophy beyond both rationalism and relativism, which are understood respectively as the tendency to subordinate life to a principle outside it and the tendency to deny value to principles altogether. The new philosophy, on the contrary, seeks to make science, art, morals—in short, all branches of culture—an integral part of life. It is supported upon a metaphysics of "perspectives", all equally veracious and authentic, which are taken in by the properly tuned mind, somewhat upon the analogy of the distance-receptors.

George H. Sabine

Cornell University

The Logic of Science. By William G. Ballantine. New York, Thomas Y. Crowell Company, 1933. Pp. 230.

Originally published in 1930 under the title *The Basis of Belief,* this book contains a very elementary exposition of induction viewed as "deductive logic applied to realities", or as a process of generalization based upon observed facts, and an analysis of "the many different senses of the very

ambiguous word 'Cause'". Primary induction—induction by complete enumeration—is declared to be "the solid and only possible basis of all scientific investigation". The cause of a phenomenon is defined as "that which gives it existence". There are material, energetic, conditional, final or volitional, and efficient causes, each of which is briefly described and illustrated. The remainder of the book deals with such time-worn subjects as the Canons of induction, the formation of hypotheses, inductive arguments, fallacies, and proof.

H. R. SMART

CORNELL UNIVERSITY

Le temps et l'éternité chez Plotin et Saint Augustin. Par JEAN GUITTON. Paris, Boivin et Cie, 1933. Pp. xxiv, 398.

The names of Maritain and Gilson have too much hidden, from foreign eyes at least, the vigour of the Augustinian School in France. Under the inspiration of Maurice Blondel, and in the direct line of descent from nineteenth century French spiritualists such as Maine de Biran, a great many of the younger generation seek a more valid realism than that offered by the Neo-Thomists. Although this work of Jean Guitton is expressly historical, even exhaustive in its erudition, and as such maintains the high level of the doctoral theses of the Sorbonne, it is also, and principally, concerned with the great debate on Christian philosophy, which is now animating French philosophical circles. The problem of time and eternity is the point of departure for an examination of the relations between Hellenic and Christian thought. This examination furnishes the occasion for a history of the ideas of time, eternity, and progress, from Plato to St. Augustine, which compares favourably with some of the best of Duhem's *Le système du monde.* The conclusion is a discreet call for a new Augustinianism which would avoid the errors of its sixteenth century forms. It is, moreover, pertinent to add that Guitton's companion-thesis is on Newman's theory of development.

R. CATESBY TALIAFERRO

UNIVERSITY OF VIRGINIA

Kierkegaard: Konstruktion des Aesthetischen. (Beiträge zur Philosophie und ihrer Geschichte, 2.) Von THEODOR WIESENGRUND-ADORNO. Tübingen, J. C. B. Mohr, 1933. Pp. viii, 166.

Kierkegaard says of Heine and Feuerbach that, though it is something with which they will have nothing to do, they understand the nature of religion very well—much better than do those systematic philosophers who undertake to explain it. Similarly the author of this thesis on Kierkegaard's aesthetic theory attributes to him an insight into the nature of art, not less profound because in the end it stands condemned as failing to touch reality. Kierkegaard's theory of aesthetic enjoyment, which is subjective and individual, necessarily lacking genuine objective criteria, is extracted from a survey of all his writings (in German translation)—pseudonymic, polemical, devotional. There is a wealth of suggestive citation, serving a little unfortunately perhaps to contrast Kierkegaard's own pungent and vivid style with the more cumbrous writing of his expositor. Kierkegaard's dialectical

method is discussed in connection with his fundamental concepts of "inwardness", existence, and sacrifice, and critical reference is made to Heidegger's indebtedness to Kierkegaard.

H. M. ESTALL

QUEEN'S UNIVERSITY

Das Sein in der Zeit. Von HEINRICH BARTH. Tübingen, J. C. Mohr, 1933. Pp. 32.

In this monograph St. Augustine's and Heidegger's conceptions of time are criticised. The discussion, however, reverts more to the conception of the former, who maintained that only the present is real whereas the past and future are moments of and given in the present through memory and expectation. Professor Barth feels that since this position sets up the present as the standard by which the past and the future are judged, the present always discovers itself and errors of interpretation therefore arise. He, on the contrary, advocates an eternal time which gives the past, present, and future their being.

ADAM ALLES

ST. JOHN'S COLLEGE

Die geistige Situation der Zeit. Von KARL JASPERS. Fünfte, zum Teil neubearbeitete Auflage. Berlin, Walter de Gruyter & Company, 1933. Pp. 192.

Professor Jaspers discusses the present spiritual and cultural status of man. As member of a group or a state, the individual is constantly torn between what the community expects of and imposes on him and the desire to be himself, to achieve something all his own, to remedy the defects of the existing order. Hence the discussion of such matters as the state (and the repeated efforts to reform, to overthrow the existing economic and political order), education, spiritual and intellectual production; in short, past and present cultural achievements and future prospects.

ADAM ALLES

ST. JOHN'S COLLEGE

Die psychologisch nachweisbare Grenze des Menschenverstandes. Von CARL KRISMAYR. Wien, Wilhelm Braumüller, 1933. Pp. 152.

Because of excessive speculation, philosophy has failed to solve our problems and to give us truth. The author, therefore, intends to show what we can and what we cannot know. All our knowledge, he contends, is ultimately grounded in sense-perception; errors in our thinking arise when, by abstraction and generalization—which are valid up to a certain point—we proceed to the point of absurdity—*i.e.*, when we speculate about Being, the thing-in-itself, the infinite, the supernatural, the First Cause, etc. As all these concepts are void of sense-content and so meaningless, all philosophic thinking which concerns itself with them is confusing and useless.

ADAM ALLES

ST. JOHN'S COLLEGE

Coleridge und die Kantische Philosophie. Erste Einwirkungen des deutschen Idealismus in England. Von ELISABETH WINKELMANN. Leipzig, Mayer & Müller, 1933. Pp. xii, 258.

This is a careful, well-documented study. Among other doctrines, Coleridge draws from Kant the distinction between understanding and reason. But, unwilling to accept the negative outcome, Coleridge interprets "reason" as intuition of indemonstrable truth. Here the author indicates Jacobi, Schelling, and Fichte as sources. Coleridge's life-long Platonism is not ignored but underestimated, for despite these undeniable affiliations, Coleridge's idealism recalls Plato, Plotinus, and the Cambridge Platonists. The poem *Dejection* is probably not Kantian in spirit, as the author suggests (159). Coleridge once compared its doctrine to a passage from Plotinus (Cottle's *Early Recollections,* appendix, ii, 201-240, "On the Principles of Genial Criticism", etc.).

NEWTON P. STALLKNECHT

BOWDOIN COLLEGE

The Fundamentals of Logic. By FRANK MILLER CHAPMAN and PAUL HENLE. New York, Charles Scribner's Sons, 1933. Pp. xvi, 384.

The authors distinguish between the "ordinary" or existential interpretation of classes and a "minimum" interpretation, which does not presuppose the existence of members; also between an "exposition" of deductive logic, which is not itself a "deduction", and a presentation in which the principles of argument are "cast in the form of an argument, making as rigid a deduction as any syllogism". The difference between Parts I and II, which treat respectively of "The Classical Logic" and "Modern Symbolic Logic", is largely determined by these distinctions. Part III, on "Scientific Methodology", includes an excellent analysis of the nature of probability.

RAY H. DOTTERER

THE PENNSYLVANIA STATE COLLEGE

Invitation to Philosophy. By DURANT DRAKE. Boston, Houghton Mifflin Company, 1933. Pp. xxvi, 538.

This lively introductory text, despite its tea-party title, should prove useful to teachers who desire a keen, provocative, up-to-date discussion of the perennial issues from the point of view of a Critical Realist. So eager is Professor Drake to establish his own position, however, that his invitation is frequently to a struggle in which the losers have so little chance that the reader is impelled to champion them. Most of his chapters are clear and searchingly critical; but some, notably those on Authority, Idealism, and Pragmatism, suffer from faulty definitions. The book includes unusually full discussions of relativity and the mind-body problem, together with a number of chapters on religious issues which are boldly liberal in tone. It well deserves the handsome typography and physical dress which the publishers have supplied.

HAROLD A. LARRABEE

UNION COLLEGE

Philosophie und Moral in der Kantischen Kritik. Von GERHARD KRUGER. Tübingen, J. C. B. Mohr (Paul Siebeck), 1931. Pp. 236.

The author thinks that neither the German Idealists nor the Neo-kantians interpret Kant correctly when they assume that he stands at the beginning

of modern thought. Kant's attempt was, according to Dr. Kruger, not to overthrow but to save metaphysics. Kant the metaphysician is the theme of this book. The essentials of his metaphysics are found in the three ideas of God, Freedom, and Immortality. These three are ideas of theoretic reason but theoretic reason alone cannot decide whether or no any object in reality corresponds to them. Here practical reason "greift Partei" and decides the issue. Thus God, Freedom, and Immortality become realities, not mere assumptions. In this manner through practical reason a real addition to our knowledge of reality is achieved. Dr. Kruger does not think that Kant has solved the metaphysical problem, but the search itself is an inevitable part of life.

P. Epp

Bluffton College

The Practice of Philosophy. By Susanne K. Langer. With a Prefatory Note by Alfred N. Whitehead. New York, Henry Holt and Company, 1930. Pp. xiii, 225.

This is not another textbook of the survey type, but a new Discourse on Method from the viewpoint of the small but growing school whose *organon* is symbolic or mathematical logic. Although it is addressed ostensibly to the beginner, "and the autodidact especially", any such reader will be constantly distracted by thrusts over his head at philosophers in general and in particular, the strategy of which will escape him; by obscure allusions to the history of philosophy, presupposing a knowledge which (if he had it) would enable him to detect several such howlers as "when Plato invented that definition, 'lovers of wisdom'"; by inexcusable typographical errors like "object" for "octave" on page 26; and by carelessness of grammar and syntax. The general design and professed intent of the book, however, are admirable; and if Mrs. Langer could forget her controversial preoccupations and rewrite it thinking only for her autodidact beginner, it would fill a widely felt need and merit the generous praise Professor Whitehead bestows upon it.

M. H. Fisch

Western Reserve University

Der Begriff des Begriffes. Von Emanuel Horn. München, Ernst Reinhart, 1932. Pp. 102.

The author has selected from the system of concepts the unique "concept of the concept" for special examination. The task is intriguing and might have resulted in a real contribution to philosophical analysis; unfortunately, the author's method is unsatisfactory and the results disappointing. The book consists of two parts, very different in scope and content and of disproportionate length. The relatively long *historical* section surveys the rôle of the concept in philosophies from Thales to Driesch. The opinions of well over a hundred philosophers, ancient, medieval, and modern, are paraphrased, quoted, and classified. There is a great mass of factual material with no attempt to reveal the historical continuity of doctrines and with no critical interpretations. Had the material been integrated after the model of Windelband's *Geschichte der Philosophie,* this portion of the book might

have been a valuable contribution to the history of ideas. In its present form it is a mere résumé of historical theories of the concept, scarcely possessing sufficient interest to sustain consecutive reading. The second or systematic part of the book is much too brief and has little organic relation to the first part. The main thesis is: 'the concept of the concept' differs from and is superior to the ordinary 'concept'. The 'concept' is a product of the understanding, an inferior faculty of the mind, and is capable of grasping only the constant factors in a perpetually changing world. Activity, change, and becoming are utterly foreign to the 'concept'. In contrast, the 'concept of the concept' is an achievement of the reason, a higher dynamic function of the mind. Concepts are tested and their value determined by the application of 'the concept of the concept'. While the volume cannot be considered a significant contribution either to the history of ideas or to the philosophical analysis of concepts, it raises certain questions of interest and points in the direction of inquiries which may profitably be pursued.

LEDGER WOOD

PRINCETON UNIVERSITY

The following books were received during the months of February and March:

The Meaning and Truth of Religion. By EUGENE WILLIAM LYMAN. New York, Charles Scribner's Sons, 1933. Pp. xvi, 468.

An Introduction to Logic and Scientific Method. By MORRIS R. COHEN and ERNEST NAGEL. New York, Harcourt, Brace and Company, 1934. Pp. xii, 468.

The Reconstruction of Religious Thought in Islam. By MOHAMMAD IQBAL. New York, Oxford University Press, 1934. Pp. viii, 192.

The Concept of a Limited God. A Study in the Philosophy of Personalism. By RANNIE BELLE BAKER. Washington, Shenandoah Publishing House, 1934. Pp. xx, 234.

The Nature of Mathematics. A Critical Survey. By MAX BLACK. New York, Harcourt, Brace and Company, 1934. Pp. xiv, 220.

Ethics and Moral Tolerance. By ARTHUR KENYON ROGERS. New York, The Macmillan Company, 1934. Pp. viii, 324.

Conversion. The Old and the New in Religion from Alexander the Great to Augustine of Hippo. By A. D. NOCK. New York, Oxford University Press, 1933. Pp. xii, 310

The Riddle of This World. By SRI AUROBINDO. Calcutta, Arya Publishing House, 1933. Pp. 110.

The Categories of Charles Peirce. By EUGENE FREEMAN. Chicago, The Open Court Publishing Company, 1934. Pp. vi, 62.

Reality and Illusion. A New Framework of Values. By RICHARD ROTHSCHILD. New York, Harcourt, Brace and Company, 1934. Pp. 442.

Descartes. By S. V. KEELING. London, Ernest Benn, Limited, 1934. Pp. xii, 282.

Léonard de Vinci: La grâce. Par RAYMOND BAYER. Paris, Félix Alcan, 1933. Pp. 304.

L'esthétique de la grâce. Introduction a l'étude des equilibres de structure. Tomes I et II. Par RAYMOND BAYER. Paris, Félix Alcan, 1933. Pp. viii, 636; 578.

Mécanismes et conscience. Par E. AUGIER. Paris, Félix Alcan, 1934. Pp. 356.

Fourier et le socialisme. Par A. PINLOCHE. Paris, Félix Alcan, 1933. Pp. 196.

Deutsche Rechtserneuerung und Rechtsphilosophie. Von KARL LARENZ. Tübingen, J. C. B. Mohr, 1934. Pp. 44.

Wahrheit und Wahrhaftigkeit in der Philosophie Nietzsches. Von ERIKA EMMERICH. Halle a. Saale, Max Niemeyer, 1933. Pp. 118.

Der verstandene Tod. Eine Untersuchung zu Martin Heideggers Existenzial-Ontologie. Von ADOLF STERNBERGER. Leipzig, S. Hirzel, 1934. Pp. x, 156.

Max Schelers phänomenologische Systematik. Von GERHARD KRAENZLIN. Leipzig, S. Hirzel, 1934. Pp. xiv, 104.

Verhandlungen des dritten Hegelkongresses vom 19. bis 23. April, 1933. Herausgegeben von B. WIGERSMA. Tübingen, J. C. B. Mohr, 1934. Pp. 278.

Sprechen, Denken und Erkennen. Grundprobleme der Philosophie. Von MAX DIEZ. Berlin und Leipzig, Walter de Gruyter & Co., 1934. Pp. iv, 168.

Da Guglielmo d'Auvergne a San Tomaso d'Aquino. Volume Secondo. L'origine delle cose da Dio in Guglielmo d'Auvergne. Per AMATO MASNOVO. Milano, Societa Editrice "Vita e Pensiero," 1934. Pp. viii, 204.

Cartesio. Per FRANCESCO OLGIATI. Milano, Società Editrice "Vita e Pensiero," 1934. Pp. xii, 330.

La filosofia dell'arte in compendio. Per GIOVANNI GENTILE. Firenze, G. C. Sansoni, 1934. Pp. 182.

Discorsi di religione. Terza edizione riveduta. Per GIOVANNI GENTILE. Firenze, G. C. Sansoni, 1934. Pp. viii, 108.

Preliminari allo studio del fanciullo. Quarta edizione riveduta. Per GIOVANNI GENTILE. Firenze, G. C. Sansoni, 1934. Pp. vi, 96.

NOTES

The Editors are in receipt of the following letter from Professor M. C. Otto:

"In his recent book, *The Philosophy of Physical Realism,* Professor Sellars makes use of a critical discussion of John Dewey's *The Quest for Certainty,* contributed by me to the *Philosophical Review* some time ago (XL 79 ff.). He says: 'As even Professor Otto remarks, there is a sense of keeping on going *nowhere*' (11). He says again: 'And yet, in spite of the fact that Professor Otto's better self gives him warning that there must be some kind of blindness here, he proceeds to accept the reading of traditional problems out of court' (19).

"It is only fair to Mr. Dewey and to myself to correct this misinterpretation of my position. I did not say or imply that I got from Mr. Dewey's book 'a sense of keeping on going *nowhere*', nor is there ground for assuming that my better self warned me against a 'kind of blindness' in *The Quest for Certainty,* a warning which a worse self, presumably, led me to disregard. One who reads my review with any attention will note the pains I took to point out that Mr. Dewey's destructive criticism, impressive as it is, constitutes only part of the book. I specifically said: 'While it would be misleading to minimize the destructive quality of the book, it would be a greater mistake to miss the deeper motive operative in this as in all of Mr. Dewey's writings. He is destructive . . . as a wrecking crew is destructive. Back of the din and the dust works a constructive purpose.' And I declared *The Quest for Certainty* to be so rich in material of a constructive character that out of it alone a considerable book might be compiled.

"As to 'going nowhere', what I said was that in view of the numbers who mouth a leader's language, while they ignore his spirit and his thought, one wished that Mr. Dewey had left himself less open to the *mis*interpretation, from which he has been made to suffer, that the aim of life should be to keep on going nowhere in particular.

I feel no inclination to engage in a debate, now more fruitless than ever, regarding the significance for mankind of certain traditional philosophic problems. My sole aim in this letter is to decline the honor of serving Mr. Sellar's polemic purpose against Mr. Dewey. I cannot be got to take a place with those who find fault with Mr. Dewey for the destruction he has wrought in the philosophic world. That seems to me all to the good. And I must add that it would seem to me not my better, but my worse, self which would warn me against being influenced by the stupendous and noble job which Mr. Dewey has done in his attempt to rescue philosophy from the hands of those who regard his method as 'some kind of blindness'."

The second Summer Seminar on Far Eastern Studies will be held at the University of California from July 25 to August 3, 1934. The first was held at Harvard University in 1932.

The following is a list of articles in current philosophical periodicals:

MIND, XLIII, 169: *R. E. Hobart,* Free Will as involving Determination and inconceivable without it; *Reginald Jackson,* Non-denotative Names; *T.*

de Laguna, Burnet's Socrates; *Bernard Notcutt,* A Set of Axioms for the Theory of Deduction.

THE MONIST, XLIV, 1: *Jared S. Moore,* A Reconsideration of the Hegelian Forms; *J. E. Turner,* The Essentials of Hegel's Spiritual Monism; *Donald C. Williams,* The Inductive Argument for Subjectivism; *T. A. Goudge,* Some Realist Theories of Illusion; *A. C. Ewing,* Can We Act Against Our Strongest Desire?; *Y. L. Chin,* Note on Alternative Systems of Logic; *A. Ushenko,* A Modification of the Theory of Types.

THE JOURNAL OF PHILOSOPHY, XXXI, 2: *Paul L. DeLargy,* Perspectivity and Objectivity; *Carroll C. Pratt,* Objectivity of Esthetic Value. 3: *C. J. Ducasse,* On the Attributes of Material Things; *Grace A. de Laguna,* Appearance and Orientation. 4: *George Todd Kalif,* The Metaphysical Basis of Induction; *Jesse V. Mauzey,* Report of the Thirty-third Annual Meeting of the Eastern Division of the American Philosophical Association. 5: *Virgil C. Aldrich,* New Epistemological Method; *Donald A. Piatt,* Report of the Tenth Annual Meeting of the Pacific Division of the American Philosophical Association.

THE JOURNAL OF RELIGION, XIV, 1: *Edward Scribner Ames,* Christianity and Scientific Thinking; *James Bissett Pratt,* Buddhism and Scientific Thinking; *K. Natarajan,* Hinduism and Modern Social-Economic Problems; *Y. Y. Tsu,* Buddhism and Modern Social-Economic Problems; *Henry E. Allen,* Islam and Modern Social-Economic Problems; *Mordecai M. Kaplan,* The Effect of Intercultural Contacts upon Judaism; *S. L. Joshi,* Hinduism and Intercultural Contacts; *Hideo Kishimoto,* The Task of Buddhism; *Solomon Goldman,* The Task of Judaism; *Martin Sprengling,* The Task of Modern Islam; *Hu Shih,* The Task of Modern Religion.

THE NEW SCHOLASTICISM, VIII, 1: *D. E. Sharp,* The *De Ortu Scientiarum* of Robert Kilwardby (d. 1279); *Gordon H. Clark,* Spontaneity and Monstrosity in Aristotle; *Thomas Verner Moore,* Gestalt Psychology and Scholastic Philosophy (II).

ANALYSIS, I, 1: A Statement of Policy; *A. J. Ayer,* Atomic Propositions; *Helen Knight,* A Note on 'The Problem of Universals'; *G. Ryle,* 'About'; *R. B. Braithwaite,* Solipsism and 'The Common Sense View of the World'. 2: *J. O. Wisdom,* Solipsism; *Maurice Cornforth,* Is Solipsism Compatible with Common Sense?; *L. S. Stebbing,* Concerning Solipsism; A Reply to T. B. Braithwaite; *G. E. Moore,* Notes of a Lecture; *Donald Sholl,* A Note on Variables; *John Wisdom,* An Explanatory Note on the Elements of Facts.

ANGLICAN THEOLOGICAL REVIEW, XVI, 1: *Edith Bideau Normelli,* What Priests Should Know in Music; *Alfred E. Haefner,* A Unique Source for the Study of Ancient Pseudonymity; *Norman B. Nash,* Contraception in the Christian Ethic; *Burton S. Easton,* Dr. Goodspeed's Work on Ephesians; *Theodore O. Wedel,* "When Half-Gods Go"; *W. Norman Pittenger,* Professor Clement Webb's New Lectures.

SPECULUM, IX, 1: *Isabel Pope,* The Thirteenth-Century Galician Lyric; *F. M. Salter,* Skelton's *Speculum Principis; E. K. Heller,* The Story of the Magic Horn; *C. W. Jones,* Polemius Silvius, Bede, and the Names of the

Months; *A. Burkhard,* The Isenheim Altar; *S. B. Meech,* John Drury and his English Writings; *A. Hilka* and *F. P. Magoun,* Manuscripts of the *Historia de Preliis; J. M. Manley,* Mary Chaucer's First Husband; *R. A. Newhall,* Payment to Pierre Cauchon for Presiding at the Trial of Jeanne D'Arc; *Kevin Guinagh,* A Manuscript of Rogerius Anglicus; *K. J. Conant,* Arthur Kingsley Porter.

THE BRITISH JOURNAL OF PSYCHOLOGY, XXIV, 3: *Saul Rosenzweig* and *Gwendolyn Mason,* An Experimental Study of Memory in Relation to the Theory of Repression; *J. M. Stephens,* A Change in the Interpretation of the Law of Effect; *J. D. Sutherland,* The Speed Factor in Intelligent Reactions; *J. B. Russell,* The Relation of Intellectual, Temperamental and other Qualities to Success at School; *M. R. Harbinson* and *F. C. Bartlett,* An Investigation of the Relation between Discomfort and Disability resulting from Glaring Light; *Otis C. Trimble,* Localization of Sound in the Anterior-posterior and Vertical Dimensions of "Auditory" Space; *W. Stephenson,* A Note on Correlations.

THE AMERICAN JOURNAL OF PSYCHOLOGY, XLVI, 1: *G. Kreezer,* The Significance of the Auditory Electrical Effects for Auditory Theory; *J. A. McGeoch* and *F. McKinney,* Retroactive Inhibition in the Learning of Poetry; *L. W. Gates,* The After-Effect of Visually Observed Movement; *M. J. Zigler, E. M. Moore,* and *M. T. Wilson,* Comparative Accuracy in the Localization of Cutaneous Pressure and Pain; *W. Line* and *M. E. Ford,* An Evaluation of Some Results from the Knox Cube Test; *S. S. Stevens,* The Relation of Saturation to the Size of the Retinal Image; *M. B. Mitchell,* Anticipatory Place-Skipping Tendencies in the Memorization of Numbers; *M. M. White* and *M. M. Ratliff,* The Relation of Affective Tone to the Learning and Recall of Words; *P. M. Zoll,* The Relation of Tonal Volume, Intensity, and Pitch; *M. H. Elliott,* The Effect of Hunger on Variability of Performance; *S. H. Britt,* The Relationship between Transfer of Learning and Age of Previous Associations; *N. E. Cohen,* Equivalence of Brightness across Modalities.

JOURNAL OF EXPERIMENTAL PSYCHOLOGY, XVII, 1: *E. L. Thorndike* and *R. T. Rock, Jr.,* Learning without Awareness of What Is Being Learned or Intent to Learn It; *H. Helson* and *L. Quantius,* Changes in Skin Temperature Following Intense Stimulation; *A. H. Maslow,* The Effect of Varying External Conditions on Learning, Retention, and Reproduction; *F. H. Lumley,* Anticipation and Erroneous Responses; *M. B. Jensen,* Punishment by Electric Shock as Affecting Performance on a Raised Finger Maze; *L. W. Crafts* and *R. W. Gilbert,* The Effect of Punishment During Learning upon Retention; *E. R. Balken* and *S. Maurer,* Variations of Psychological Measurements Associated with Increased Vitamin B Complex Feeding in Young Children; *G. Reiman,* The Influence of Coffee on the Association Constant; *M. A. Tinker,* The Statistical Limen Versus the Average as a Measure of Visual Apprehension; *W. R. Carlson, R. C. Driver* and *M. G. Preston,* Judgment Times for the Method of Constant Stimuli; *M. L. Phares,* Analysis of Musical Appreciation by Means of the Psychogalvanic Reflex Technique; *A. H. Maslow,* The Effect of Varying Time Intervals between Acts of Learning with a Note on Proactive Inhibition;

W. C. F. Krueger, The Relative Difficulty of Nonsense Syllables; *J. M. Smith,* The Sensory Function of the Non-Preferred Hand; *F. H. Lumley,* Selecting and Timing Apparatus.

PSYCHOLOGICAL BULLETIN, XXXI, 1: *Samuel W. Fernberger,* Howard Crosby Warren; *Wayne Dennis,* A Description and Classification of the Responses of the Newborn Infant; *T. W. Richards* and *Orvis C. Irwin,* Experimental Methods Used in Studies on Infant Reactions Since 1900; *Elizabeth B. Hurlock,* Experimental Investigations of Childhood Play. 2: *Florence L. Goodenough,* Trends in Modern Psychology; *Miles A. Tinker,* Conditioned Withdrawal Responses with Shock as the Conditioning Stimulus in Adult Human Subjects.

REVUE DE MÉTAPHYSIQUE ET DE MORALE, XLI, 1: *B. Croce,* La "Mort de l'Art dans le système hégélien; *E. Forti,* La méthode scientifique en morale et en psychologie suivant l'œuvre de Frederic Rauh; *J. Laporte,* Le libre arbitre et l'attention selon Saint Thomas (suite et fin); *J. Nogué,* La détermination du fait primitif (suite et fin); *C. Bialobrzeski,* Sur l'interprétation concrète de la mécanique quantique; *P. Devaux,* Le pragmatisme conceptuel de Clarence Irving Lewis.

REVUE PHILOSOPHIQUE, XLIX, 1 et 2: *G. Dumas,* Le symbolisme dans la langue; *E. Rabaud,* Le monde vivant sans hérédité; *A.* et *Y.-D. Miroglio,* Reflexions sur "Les deux sources de la morale et de la religion"; *G. Gurvitch,* Les fondements et l'évolution du droit d'après Emmanuel Levy.

REVUE D'HISTOIRE DE LA PHILOSOPHIE ET D'HISTOIRE GÉNÉRALE DE LA CIVILISATION, N. S. 3: *Henri Gouhier,* Le roman français d'aujourd'hui; *René Jasinski,* Le théâtre français contemporain; *Gustave Charlier,* Un romancier wallon: Edmond Glesener; *M. Le Breton,* Les tendances du roman américain contemporain; *Méderic Dufour,* Esquisse d'une philosophie de la danse.

SCHOLASTIK, IX, 1: *Peter Browe,* Das Beichtgeheimnis im Altertum und Mittelalter; *Joseph Frobes,* Naturwissenschaftliche und geisteswissenschaftliche Psychologie; *Richard Egenter,* Gemeinnutz vor Eigennutz; *Josef Janische,* Führt der Ambrosiaster zu Augustinus oder Pelagius?

RIVISTA DI FILOSOFIA, XXV, 1: *G. Tarozzi,* Bernardino Varisco; *P. Martinetti,* Ragione e fede; *G. Solari,* Il concetto di società in Kant; *M. Pizzagalli,* Le origini della metemsicosi e gli inganni della memoria; *G. Grasselli,* Un pensiero di Hegel e la questione ebraica in Germania.

RIVISTA DI FILOSOFIA NEO-SCOLASTICA, XXV, 6: *E. Chiocchetti,* Il pensiero del Vico di fronte alle correnti filosofiche; *F. Olgiati,* La "simplex apprehensio" e l'intuizione artistica; *T. M. Bartolomei,* La teoria dell'esperienza di Antonio Aliotta.

GIORNALE CRITICO DELLA FILOSOFIA ITALIANA, XIV, 5 and 6: *E. Bignami,* Problemi vari sulla Poetica di Aristotele; *E. Niccolini,* Il misticismo di Niccolo Malebranche; *E. Garlin,* Michelangelo Fardella; *F. Lombardi,* Il problema umano della filosofia; *I. Baggio,* L'idealismo concreto di P. Carabellese.